PB82-123704

Farmland Industries, Inc.
Phosphate Mine, Hardee County, Florida

(U.S.) Environmental Protection Agency
Atlanta, GA

Oct 81

U.S. Department of Commerce
National Technical Information Service
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Final Environmental Impact Statement

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October 1981

6. 306028

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EIS Branch, EIS Preparation Section, S&A Division

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9. Performing Organization Name and Address
U.S. EPA
EIS Branch
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Atlanta, Ga 30365

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14.

15. Supplementary Notes

16. Abstracts

Farmland Industries, Inc. has proposed an open pit phosphate mine and beneficiation plant on a 7810-acre site in west central Hardee County, Florida. Mining and processing will involve 5280 acres, all of which will be reclaimed, and will produce 2 million tons of phosphate rock per year for 20 years. The EIS examines alternatives, impacts and mitigative measures related to air, geology, radiation, groundwater, surface water, ecology and other natural and cultural systems.

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Hardee County
Florida
West Central

17b. Identifiers/Open-Ended Terms

17c. COSATI Field/Group

18. Availability Statement

19. Security Class (This Report)
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20. Security Class (This Page)
UNCLASSIFIED

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United States
Environmental Protection
Agency

Region 4
345 Courtland Street NE
Atlanta, Ga. 30365

EPA 904/9-81-085
October 1981

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EPA

Environmental Impact Statement

Final

Farmland Industries, Inc.
Phosphate Mine
Hardee County, Florida

REPRODUCED BY
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U.S. DEPARTMENT OF COMMERCE
SPRINGFIELD, VA 22161

FINAL ENVIRONMENTAL IMPACT STATEMENT

for

Proposed Issuance of a New Source National Pollutant Discharge Elimination System Permit

to

Farmland Industries, Incorporated
Phosphate Mine
Hardee County, Florida

prepared by:

U.S. Environmental Protection Agency
Region IV, Atlanta, Georgia 30365

cooperating agency:

U.S. Army Corps of Engineers
Jacksonville District
Jacksonville, Florida 32201

Farmland Industries, Inc. has proposed an open pit phosphate mine and beneficiation plant on a 7810-acre site in west central Hardee County, Florida. Mining and processing will involve 5280 acres, all of which will be reclaimed, and will produce 2 million tons of phosphate rock per year for 20 years. The EIS examines alternatives, impacts and mitigative measures related to air, geology, radiation, groundwater, surface water, ecology and other natural and cultural systems.

Comments will be received through November 23, 1981.

Comments or inquiries should be directed to:

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Region IV
345 Courtland Street, N.E.
Atlanta, Georgia 30365
(404) 881-7458

approved by:

John A. Little, Deputy for
Charles R. Jeter
Regional Administrator

9-29-81
Date

Summary Sheet
for
Environmental Impact Statement

Farmland Industries, Inc.

Phosphate Mine

( ) Draft
(X) Final

U.S. Environmental Protection Agency, Region IV
345 Courtland Street, N.E.
Atlanta, Georgia 30365

1. Type of Action: Administrative (X) Legislative ( )

2. Description of Action:

Farmland Industries, Inc. (Farmland) is proposing to construct and operate a phosphate mine and beneficiation plant in Hardee County, Florida (Figure 1). The EPA Region IV Administrator has declared the proposed facilities to be a new source as defined in Section 306 of the Federal Clean Water Act.

In compliance with its responsibility under the National Environmental Policy Act (NEPA) of 1969, EPA Region IV has determined that the issuance of a new source National Pollutant Discharge Elimination System (NPDES) permit to Farmland for planned discharges from the proposed mining and beneficiation facility would constitute a major Federal action significantly affecting the quality of the human environment.

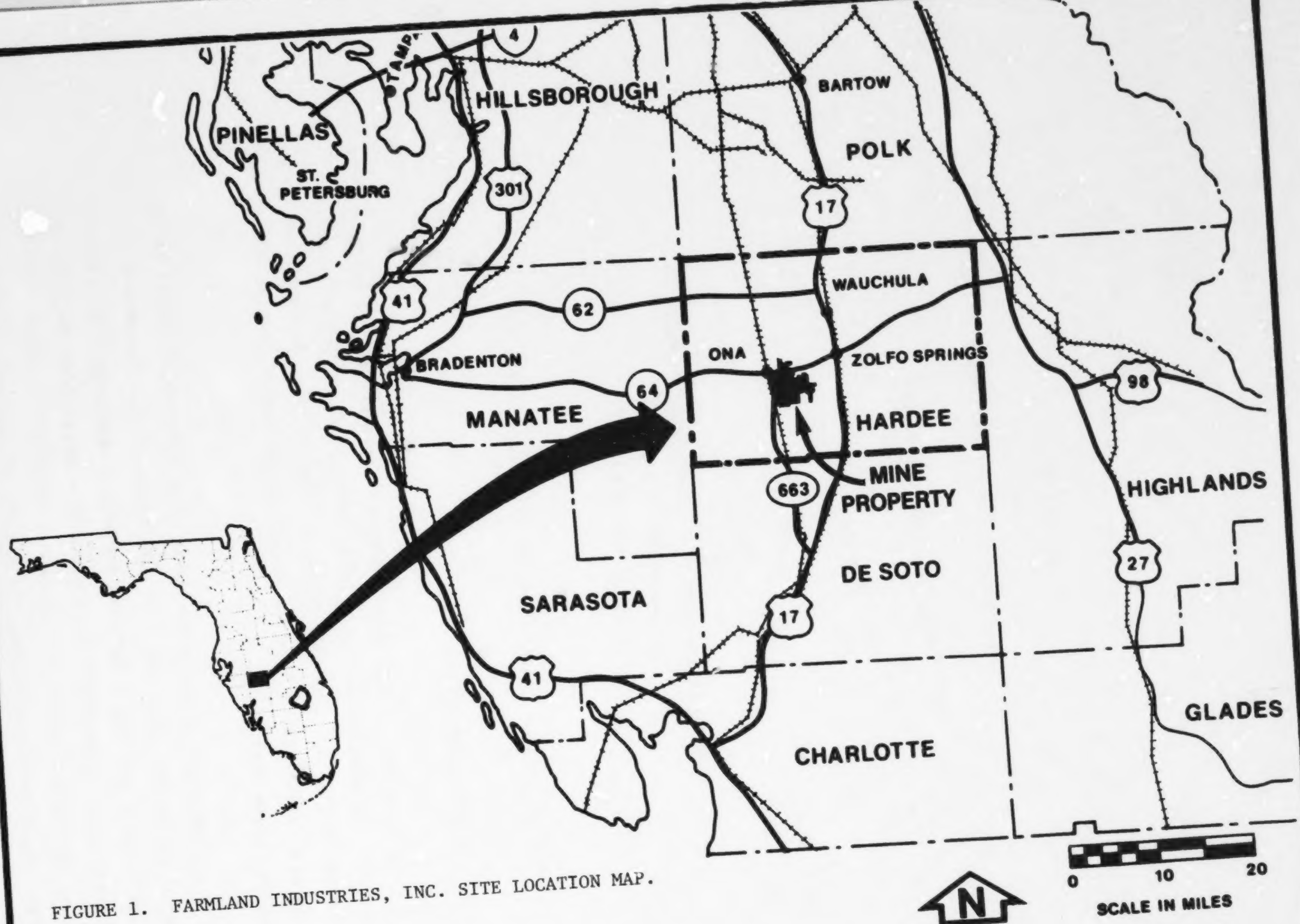
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FIGURE 1. FARMLAND INDUSTRIES, INC. SITE LOCATION MAP.

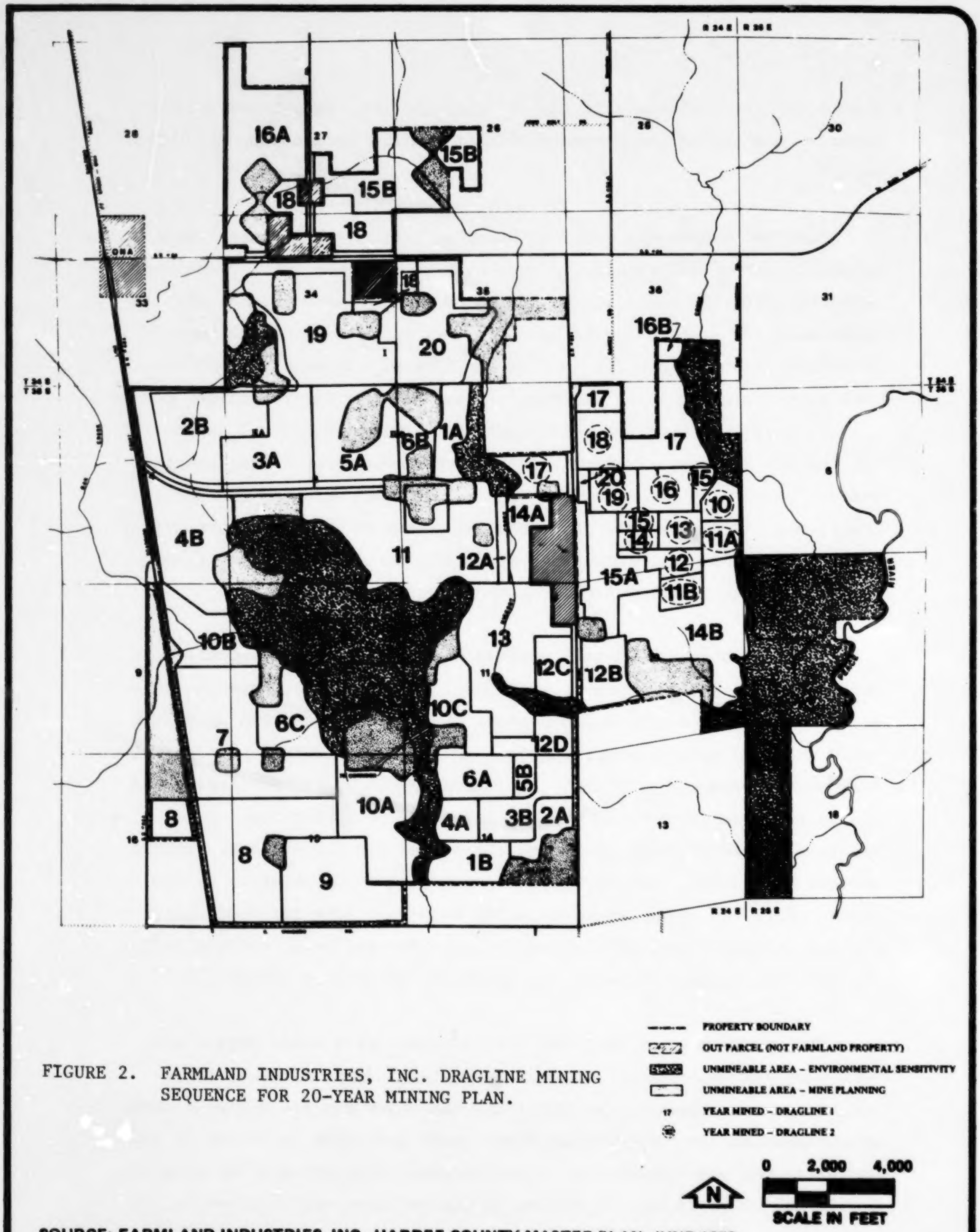
SOURCE: FARMLAND INDUSTRIES, INC., HARDEE COUNTY MASTER PLAN, JUNE 1979

Therefore this Environmental Impact Statement has been prepared in accordance with the requirements of NEPA and EPA regulations at 40 CFR Part 6.

Farmland's proposed mine operation is planned to produce 2 million tons per year of wet phosphoric rock over the 20-year life of the mine. Approximately 4951 acres of the 7800-acre site would be mined, with an additional 329 to be occupied by other facilities such as the beneficiation plant (Figure 2). During the life of the mine, all of the rock mined from the tract would be shipped to existing fertilizer plants for conversion to finished fertilizer, with approximately 50 percent of the tonnage going to Farmland's existing phosphate fertilizer manufacturing facility at Green Bay, Florida. Farmland currently and historically has bought the phosphate rock processed at their Green Bay plant from other producers. Farmland states that the proposed mine is needed to stabilize their phosphate rock supply.

The initial phase of the proposed activity would be land clearing and open burning in advance of the mine. The cleared acreage in front of the mining operation would be about 20 acres. The mining operation would employ a single large dragline supplemented, beginning in year 10, by a second, smaller dragline. The mined matrix would be slurried and transported via pipeline to the beneficiation plant for washing to separate pebble product, clay, and fines, and for flotation to recover additional product. The wet rock would be stored temporarily at the plant. Farmland plans to construct an 8000-foot long railroad spur, linking the plant with the Seaboard Coast Line Railroad, and rail ship the wet rock product to receiving phosphate fertilizer plants.

The proposed waste sand and clay disposal plan would employ the sand-clay mix technique. Limited conventional disposal would be required to store these wastes until the sand-clay mix procedure becomes operational and to periodically store waste generated in excess of the sand-clay mix requirements and capabilities. Conventional Settling Area I (495 acres) would be constructed on unmined land and utilized during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PROPERTY BOUNDARY
OUT PARCEL (NOT FARMLAND PROPERTY)
UNMINEABLE AREA – ENVIRONMENTAL SENSITIVITY
UNMINEABLE AREA – MINE PLANNING
17 YEAR MINED – DRAGLINE 1
YEAR MINED – DRAGLINE 2
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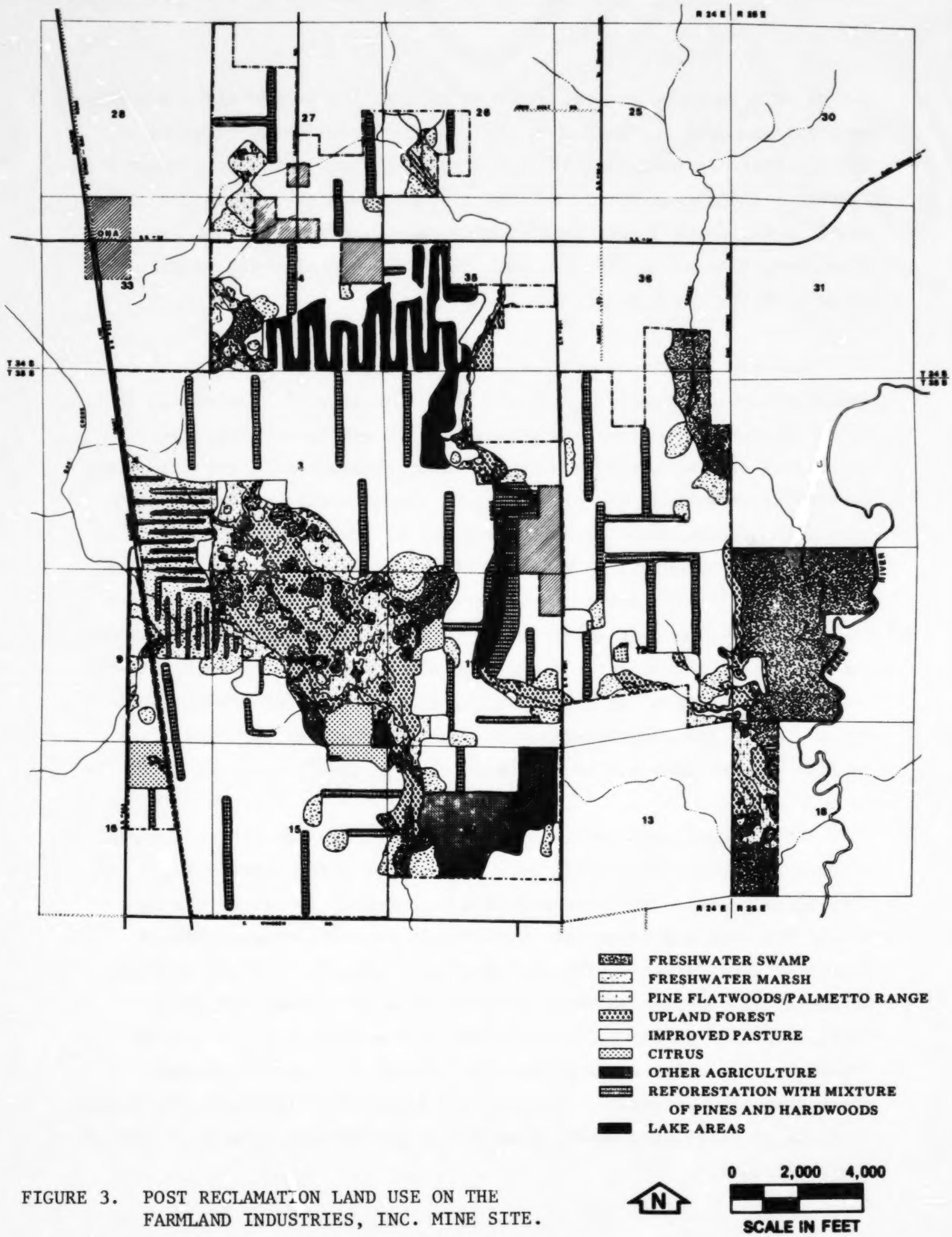
FIGURE 2. FARMLAND INDUSTRIES, INC. DRAGLINE MINING SEQUENCE FOR 20-YEAR MINING PLAN.

SOURCE: FARMLAND INDUSTRIES, INC., HARDEE COUNTY MASTER PLAN, JUNE 1979

the first 5 years of mining, after which time the stored clays would be removed (and used for sand-clay mix) and the ground beneath would be mined. Settling Area II (583 acres) would be used as early as year 2 of operation and remain active for the life of the mine. Sand-clay mixing could begin in the fourth year of mine operation and continue for the mine life, ultimately creating 3915 acres of sand-clay mix areas, or 79 percent of the total mined area.

The proposed mining operation would require water for matrix transport and processing equivalent to a flow rate of 50,000 gpm (72 mgd). The proposed water management plan incorporates extensive recycling of process water to minimize water consumption. The mine water recirculation system, the clay settling areas, active sand-clay mix areas, and return water ditches would act as a water clarification system, returning decanted water to the clear water pond for reuse at the mine and beneficiation plant. Recycle water would be reused many times before being lost to the waste or phosphate products as entrained water. Actual freshwater use would be about 8.83 mgd, most (6.02 mgd) of which is required for the amine flotation section of the beneficiation plant. The additional amount would be required for make-up to replace water losses within the recirculating system.

The proposed reclamation plan is based on the use of a waste sand-clay mix material as backfill over most of the mined area (3915 of the 5169 acres mined). The proposed plan is designed to return the site to a land form and use compatible with the surrounding area, which is primarily agricultural. The reclaimed site (Figure 3) would consist primarily of improved pasture, restored marshes, lakes, and areas (totalling 2530 acres) to be preserved by Farmland (e.g., Oak Creek Islands). Following reclamation, the acreage of forested uplands, freshwater marsh, improved pasture, and lakes would increase, while the acreages of freshwater swamp, pine flatwoods-palmetto range, and citrus would decrease.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RIVER
FRESHWATER SWAMP
FRESHWATER MARSH
PINE FLATWOODS/PALMETTO RANGE
UPLAND FOREST
IMPROVED PASTURE
CITRUS
OTHER AGRICULTURE
REFORESTATION WITH MIXTURE OF PINES AND HARDWOODS
LAKE AREAS
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SCALE IN FEET

FIGURE 3. POST RECLAMATION LAND USE ON THE FARMLAND INDUSTRIES, INC. MINE SITE.

SOURCE: FARMLAND INDUSTRIES, INC., HARDEE COUNTY MASTER PLAN, JUNE 1979

3. Alternatives Considered:

Farmland has developed an integrated plan for the mining and processing of phosphate rock at their Hardee County mine. This plan is comprised of a number of individual components linked so as to provide a total project capable of meeting Farmland's goals. The identifiable components included in the Farmland project are as follows:

- Mining
- Matrix Transport
- Matrix Processing
- Waste Sand and Clay Disposal
- Process Water Source
- Water Management Plan
- Reclamation

The Draft EIS identified and evaluated various methods (i.e., alternatives) available to satisfy the objectives of each of these components. These are summarized below, and each alternative, including "no action", is briefly described in the succeeding paragraphs:

Component	Objective	Alternatives Considered
Mining	Remove overburden and deliver matrix to a transport system.	Dragline Mining*, Dredge Mining, and Bucketwheel Mining.
Matrix Transport	Transport matrix from the mine to the beneficiation plant.	Slurry Matrix Transport*, Conveyor Transport, and Truck Transport.
Matrix Processing	Process the matrix to separate the phosphate rock product from the waste sand and clay.	Conventional Matrix Processing* and Dry Matrix Processing.
Waste Sand and Clay Disposal	Dispose of the waste sand and clay generated by matrix processing.	Sand-Clay Mixing* and Conventional Sand and Clay Disposal.

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*Farmland's proposed action.

Component	Objective	Alternatives Considered
Process Water Sources	Provide a continuous source of freshwater (about 8.83 mgd) for use in matrix processing and as make-up for losses to the recirculating system.	Groundwater Withdrawal* and Surface Water Impoundment.
Water Management	Provide a means to reduce the amount of water in the recirculating system.	Discharge to Surface Waters* and Use of Connector Wells.
Reclamation	Return the mined site to useful productivity.	Farmland's Reclamation Plan, Conventional Reclamation, and Natural Mine Cut Reclamation.

Mining

Mining of the Farmland deposit would require the removal of about 40 feet (total) of overburden and phosphate matrix at a rate of about 250 acres per year, eventually resulting in the mining of 4951 acres of the 7810-acre site over a planned 20-year mine life. Over this period 39 million short tons of phosphate rock and 174 million tons of overburden would be handled. The alternative mining methods evaluated which are capable of handling this quantity of material were dragline mining, dredge mining, and bucketwheel mining.

Dragline Mining. Farmland proposes to use a single large (45-cu yd) dragline to move overburden and mine matrix during the first 9 years of operation. In year 10 a second smaller (20-cu yd) dragline would be added to supplement the larger unit. Other than the fact that Farmland proposes to initially mine with only a single large dragline (rather than two smaller units), the proposed mining method is as conventionally practiced in the Florida phosphate industry.

Dredge Mining. The three most common dredge types are the bucket line, cutter head, and bucketwheel. Each is basically a large, barge-mounted machine consisting of a continuous digging apparatus mounted on a long boom extending below the water surface. The bucket line's chain-carried buckets continuously transfer material up to the barge, while the other two units pump material from beneath the water to the surface via a suction pipe.

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*Farmland's proposed action.

Bucketwheel Mining. Bucketwheel excavators are large continuous mining machines which excavate material with a series of buckets mounted on the periphery of a rotating wheel and deposit it onto a conveyor belt system. Overburden would be conveyed for disposal in previously mined areas, while matrix would be sent to the beneficiation plant.

Matrix Transport

Farmland's operating requirements call for the delivery of about 1500 short tons of phosphate matrix per hour to the beneficiation plant. The alternative delivery methods evaluated in the DEIS were slurry matrix transport, conveyor matrix transport, and truck matrix transport.

Slurry Matrix Transport. Slurry matrix transport is used at most existing Florida phosphate mines. Matrix would be placed into a slurry pit and mixed with recycled water (17,720 gpm) from high pressure nozzles, breaking down the clay and sand matrix into a 26 percent solids slurry which would then be transported via pipeline to the beneficiation plant by a series of large pumps operating at about 19,400 gpm.

Conveyor Matrix Transport. Conveyor matrix transport would require that matrix be placed onto a belt conveyor at the mine for transport to the beneficiation plant. In order to minimize the number of transfer points and still maintain mobility of the conveyor sections, such a conveyor belt system would most likely include belt sections of up to 2000 feet in length.

Truck Matrix Transport. A dragline would load the trucks, which would then transport the matrix via haul roads to the beneficiation plant. At the plant matrix would be dumped and/or washed out of the trucks.

Matrix Processing

Matrix from the Farmland site contains waste sand and clay as well as phosphate rock. The waste sand and clay must be separated from the product phosphate rock before it can be shipped to the chemical plants for further processing. For each ton of product, 1.08 tons (dry) of clay and 2.82 tons (dry) of sand would be produced. The alternative processing methods evaluated in the DEIS were conventional matrix processing and dry matrix processing.

Conventional Matrix Processing. Conventional matrix processing involves the separation of phosphate rock from waste sand and clay using a series of wet-process operations. These consist of washing, feed preparation, and flotation. This is the only method of matrix processing in operation in the Florida phosphate industry today.

Dry Matrix Processing. The general concept of dry processing involves the production of usable phosphate product from matrix--directly following its excavation and drying. The method utilized would probably involve both air separation and electrostatic separation.

Waste Sand and Clay Disposal

As indicated above, 2.82 tons (dry) of waste sand and 2.08 tons (dry) of waste clay would be generated for each ton of phosphate rock product produced. With some 40 million tons of product to be produced over the 20-year life of the mine, 156 million tons of waste sand and clay would be generated (112.8 million tons of sand and 43.2 million tons of clay). Alternative methods of waste sand and clay disposal evaluated in the DEIS were sand-clay mixing and conventional sand and clay disposal.

Sand-Clay Mixing. Sand-clay mixing involves the recombining of the waste sand and clay removed from the phosphate matrix in areas surrounded by dikes 17-20 feet high. Although Farmland proposes to use the dredge-mix method for creating such a mixture, the technique for applying this method at the Farmland site has not yet been proposed by Farmland.

The supply of sand and clay in the matrix should be sufficient to allow development of such a technique. Farmland has committed to do this once operation begins.

Conventional Sand and Clay Disposal. Conventional methods for disposing of the waste sand and clay removed from the phosphate matrix during processing involve their impoundment in separate areas surrounded by dikes as high as 41 feet above-grade. More than half of the area to be mined would be covered with waste clays impounded to a height of 35 feet above-grade and surrounded by such dikes.

Process Water Sources

Process water requirements for the proposed mining and beneficiation of phosphate (using slurry matrix transport and conventional matrix processing) amount to a flow rate of about 50,000 gpm (72 mgd). Much (88 percent) of this would be recycled water. Actual freshwater requirements will be about 8.83 mgd with most (6.02 mgd) required for use in the amine flotation section of the beneficiation plant. The alternative freshwater sources to meet this requirement which were evaluated in the DEIS were groundwater withdrawal and surface water impoundment.

Groundwater Withdrawal. The major source of freshwater used at the mine would be from onsite deep (1400-foot) wells. The mine field would likely consist of a primary production well, standby production well, and a potable water well. The production well would have a capacity of 6200 gpm, with the average daily pumping rate being about 6133 gpm.

Surface Water Impoundment. The most readily available freshwater source which could be utilized by Farmland would be surface water from nearby creeks and rivers. Since the creeks on the site typically exhibit low flows, or even intermittent flows, the quantity available for use as process water could be best provided by impoundment within a reservoir system constructed on the site.

Water Management Plan

During normal operations, water losses through entrainment, seepage, evaporation, and wet rock shipment would equal the freshwater input to the recirculating water system and a discharge would not be required. During periods of heavy rainfall the recirculating system might become overloaded, however, and a means of reducing the water volume would thus be required. The alternative methods for removing water from the recirculating system which were evaluated in the DEIS were a discharge to surface waters and use of connector wells.

Discharge to Surface Waters. Seasonal changes in rainfall and evaporation rates will affect the active water volume of the recirculating water system. When heavy rainfall occurs, the system may become overloaded, forcing a discharge to an existing natural drainage (either Hickory Creek or Oak Creek) through a control structure.

Use of Connector Wells. Connector wells would serve to reduce the amount of water in the recirculating system by dewatering the Surficial Aquifer (a source of water inflow to the system) in the vicinity of the active mine pit. This water would be pumped downward through wells into a deeper aquifer and serve as a source of recharge to that aquifer.

Reclamation Plan

The mining of phosphate and disposal of wastes generated during beneficiation would greatly alter the land surface of most of the Farmland site. Future use of the site would be largely dependent upon the manner in which the mined land surface is reformed (i.e., reclaimed). The alternative methods of reclaiming the mined site which were evaluated in the DEIS were Farmland's proposed reclamation plan, conventional reclamation and natural mine cut reclamation.

Farmland's Proposed Reclamation Plan. Farmland's proposed reclamation plan consists of five general types of restoration. These are generally described as follows:

Sand-Clay Mix Landfills	- 3915 acres
Crust Development on Clay Settling Areas	- 583 acres
Sand Tailings Landfills	- 104 acres
Land and Lakes Areas	- 567 acres
Disturbed Natural Ground	- 111 acres

Reclamation would proceed over the life of the mine, with the final areas mined being reclaimed in the 24th year after operation begins.

Conventional Reclamation. Conventional reclamation is reclamation associated with the separate disposal of sand and clay waste (i.e., conventional sand and clay waste disposal). Reclamation would consist of allowing a crust to form over the more than 2500 acres of impounded clays and seeding these areas with forage species, and creating extensive land and lakes areas in those areas of the site not covered with impounded clays. The revegetation of these areas would likely consist of forage species plantings on most land areas, with forest tree plantings along the edges of the lakes.

Natural Mine Cut Reclamation. Natural mine cut reclamation would amount to leaving mined-out areas in windrows, with sand-clay mix deposited between windrows. Mined areas would be allowed to revegetate naturally, as has been the case in many of the older central Florida mines. The resultant use of the mined-out land would be largely for fish and wildlife habitat, with some pastureland.

The No Action Alternative

The no action alternative by EPA would be the denial of an NPDES permit for the proposed project. The effect of permit denial would be to precipitate one of three possible reactions on the part of Farmland: (1) termination of their proposed project; (2) indefinite postponement of the proposed project; or (3) restructuring of the project to achieve zero discharge, for which no NPDES permit would be required.

Termination of the planned project would allow the existing environment to remain undisturbed and the gradual socioeconomic and environmental trends would continue as at present.

If EPA were to deny Farmland's NPDES permit application, the project might be postponed for an indefinite period of time and then successfully pursued by either Farmland or another mining company. This might be expected to occur when high grade phosphate reserves are depleted and the resource retained on the Farmland site becomes extremely valuable strategically as well as economically.

If EPA denies the NPDES permit, Farmland could still execute a mining project provided the project could be performed with zero discharge to surface waters. Under zero discharge conditions, neither an NPDES permit nor an Environmental Impact Statement would be required.

4. Mitigation Measures:

Farmland's proposed action includes a number of measures to reduce the potential for adverse impacts on the environment. These are described below by the components with which they are most closely associated:

Mining

- The existing vegetative cover would be maintained on all land for which mining or support activities are not imminent.
- The vegetative cover on about one-third of the mine site would be preserved--including the most important wetland acreages.
- Dragline crossings of stream channels would be selected to disturb the least total area, particularly the least wetland area; and crossings of Oak Creek and Hickory Creek would be timed to coincide with the dry, no-flow periods.
- The Oak Creek crossings through the preserved portion of Oak Creek Islands would be made along a single corridor.

- Vegetation would be established on the approaches to creek crossings and these would be maintained until the final crossing is made.
- Fill introduced into creek channels during dragline crossings would be removed after the crossings and the banks immediately stabilized with vegetation.
- Mine cuts adjacent to property boundaries would be promptly backfilled, and rim ditches would be used, where necessary, to maintain Surficial Aquifer levels at adjacent property boundaries and in preserved areas.

Matrix Transport

- Double-walled pipe and catchment basins would be used at matrix pipeline stream crossings to contain matrix slurry in the event of a leak at that point.
- Pressure sensitive devices would be installed in matrix pipelines to alert mine personnel to a significant leak in the system.
- Cut-off valves would be installed at both sides of pipeline stream crossings to assist in controlling a pipeline leak at these points.

Matrix Processing

- During plant construction, water sprays would be applied to unpaved areas and roads to reduce particulate emissions.
- During plant construction and operation, perimeter ditches would be installed to collect runoff from the plant site area.
- Storage facilities for reagents, fuel, lubricants, etc. would be above ground within a walled or diked tank farm.
- Petroleum storage tanks would be built to standards and designed to prevent accidental spillage. Storage areas would be designed to route spillage and/or accumulated rainfall to the mine water recirculating system or to a tank within the area.

Waste Sand and Clay Disposal

- The design and construction of dams required for the impoundment of clay and sand-clay wastes would comply with all provisions of Chapter 17-9 of the Florida Administrative Code.
- Dam faces would be planted in grasses to inhibit wind and water erosion, and would be mowed as necessary for visual inspection.
- All dams would be inspected daily by a trained Farmland employee, and annually by a design engineer.

Process Water Source

- Pumping may be reduced in dry periods in order to comply with Southwest Florida Water Management District (SWFWMD) regulations.

Water Management Plan

- Water would be recycled to the maximum extent possible (approximately 90 percent).
- Discharges should occur only during periods of heavy rainfall.

Reclamation

- All dikes and ditches would be graded to acceptable slopes and revegetated.
- All disturbed land would be revegetated. An experimental revegetation program would be conducted on the first sand-clay mix landfill that becomes available to determine the agricultural and wetland restoration potential of such areas.

Additional mitigation measures which would serve to reduce the impacts which the project will have on the surrounding environment were developed from inputs received from the preparers of the various sections of the Environmental Impact Statement. These are described below:

- Pile overburden such that the volume available for below ground waste disposal is maximized.
- Use "toe spoiling" to reduce the radioactivity of reclaimed surface soils.
- Cover reclaimed sand-clay mix disposal areas with about 6 inches of low activity soil to reduce gamma radiation levels.
- Cover reclaimed clay disposal areas with 10-15 ft of overburden to reduce gamma radiation levels.
- Use treated mine water, rather than Surficial Aquifer water, for pump seal lubrication.
- Divert Hickory Creek around the mining area to its preserved lower portion, rather than to Troublesome Creek.
- Restrict mining along the preserved lower portion of Hickory Creek to only one side of the stream channel at a given time.
- Monitor the Surficial Aquifer in the vicinity of sand-clay mix disposal areas.

- Increase the acreage to be reclaimed as forest habitat and provide corridors for wildlife movement between reclaimed and preserved areas by planting additional areas with trees.
- Establish a 7- to 10-acre littoral zone at the downstream end of the lake system proposed for reclamation of the Hickory Creek channel.
- Increase the acreage to be reclaimed as marsh by 116 acres.
- Implement a program to reduce impacts on the indigo snake, a threatened species which occurs on the site.

5. EPA's Preferred Alternatives and Recommended Mitigating Measures:

The alternatives evaluation for the Farmland project is presented in detail in Section 2.0 of the Draft EIS. Based on analyses described in that section, the DEIS identified EPA's preferred alternative for each of the project components as follows:

Project Component	EPA Preferred Alternative
Mining	Dragline Mining
Matrix Transport	Slurry Matrix Transport
Matrix Processing	Conventional Matrix Processing
Waste Sand and Clay Disposal	Sand-Clay Mixing
Process Water Source	Groundwater Withdrawal
Water Management Plan	Discharge to Surface Waters
Reclamation	Farmland's Proposed Reclamation Plan

While EPA's preferred alternatives for the various project components are in agreement with Farmland's proposed action, implementation of most of the mitigation measures described in the previous section was also recommended in the DEIS. The measures not recommended were the capping of waste disposal areas with low activity overburden and the use of treated mine water to meet pump seal requirements. All other mitigation measures listed in Section 4 were proposed as conditions of the Draft NPDES permit for the Farmland project.

6. Summary of the Environmental Effects of the Alternatives:

After identifying the environmentally preferable alternatives for the various project components, the DEIS developed a comparison between (1) Farmland's Proposed Action; (2) EPA's preferred alternatives and mitigating measures; and (3) the No Action alternative of permit denial by EPA, which could lead to termination of the project, postponement of the project or restructuring of the project to achieve zero discharge. A summary of the impacts of each of these three alternatives is presented in a comparative format in Table 1.

7. Identified Issues and Concerns:

The DEIS was made available to the Council on Environmental Quality (CEQ) and the public in May of 1981. A joint public hearing to receive comments on the DEIS and the Draft NPDES permit and state certification was held in Wauchula, Florida on July 14, 1981. The comment period on the DEIS remained open through July 28, 1981, and wirtten comments on the DEIS were received from the following:

Federal Agencies

U.S. Department of Energy
U.S. Department of Agriculture, Forest Service
U.S. Department of the Air Force, Headquarters Environmental Division
U.S. Department of Housing and Urban Development
U.S. Department of the Air Force, Regional Civil Engineer
U.S. Department of the Army, Corps of Engineers
U.S. Department of Health and Human Services, Public Health Service
U.S. Department of the Interior
U.S. Department of Commerce

State Agencies

Florida Department of Transportation

Interested Groups or Individuals

Farmland Industries, Incorporated

Table 1. COMPARISON OF THE ENVIRONMENTAL IMPACTS OF THE ALTERNATIVES.

Discipline	Farmland's Proposed Action	EPA'S Preferred Alternatives and Mitigating Measures	The No Action Alternative		
			Termination	Postponement	Achieve Zero Discharge
Air Quality, Meteorology, and Noise	Minor increases in fugitive dust emissions and emissions from internal combustion engines; minor emissions of volatile reagents; increased noise levels in the vicinity of operating equipment.	Same as Farmland's proposed action.	No change in meteorology & noise levels present; possible air quality changes from other sources.	Same as Farmland's proposed action.	Same as Farmland's proposed action.
Geology and Soils	Disruptions of the surface soils and overburden strata over the mine site; depletion of 40 million tons of phosphate rock resources; creation of a reclaimed soil material which should be superior to existing soils.	Same as Farmland's proposed action, except that the height of the remaining waste clay impoundment could be reduced by about 4 feet by piling overburden to greater heights.	No change in geology; no change in site soils (i.e., increased productivity); preservation of 40 million tons of phosphate rock reserves.	Possible increased phosphate recovery and more effective sand-clay mix disposal, reclamation, and wetlands restoration.	Increased dike heights, and water storage capacity; probable infringement on preserved areas; less desirable reclamation plan.
Radiation	Disruption of the natural distribution of radioactive material within the overburden and phosphate matrix; increased radiation levels from reclaimed surfaces.	Same as Farmland's proposed action, except that reclaimed surface soils would contain less radioactive material because of toe spoiling.	No change in radiation characteristics of the site.	Same as Farmland's proposed action.	Probable increase in area covered with waste clays--the reclaimed material having the highest radioactivity levels.
Groundwater	Withdrawal of groundwater from the Floridan Aquifer at an average rate of 8.83 mgd; lowering of Surficial Aquifer in the vicinity of active mine pits; possible local contamination of Surficial Aquifer adjacent to sand-clay mix disposal areas.	Same as Farmland's proposed action.	No change in existing groundwater quantity and quality.	Possible reduction in groundwater withdrawals because of more effective dewatering of waste materials.	Same as Farmland's proposed action.
Surface Water	Disruption of surface water flows from the mine site; minor reduction in flows following reclamation; degradation of water quality due to discharges from the mine water system.	Same as Farmland's proposed action, except that flow would be maintained in lower Hickory Creek, instead of increasing flow in Troublesome Creek; and there would be reduced loss of baseflow to Hickory Creek in years 12-13.	No change in surface water quantity; surface water quality would be dependent upon future land uses in the site area.	Same as Farmland's proposed action.	Elimination of surface water quality impacts resulting from discharge from mine water system; increased probability of dike failure impacts.
Aquatic Ecology	Destruction of aquatic habitats on the mine site; aquatic habitat modifications due to reduced surface water flows and addition of contaminants to creeks flowing from the site.	Same as Farmland's proposed action, except that the impacts on aquatic biota in Hickory Creek will be lessened by the continuation of flow through its preserved lower portion.	No change in existing aquatic ecology.	Same as Farmland's proposed action.	Elimination of habitat modification resulting from discharge from mine water system; increased probability of dike failure impacts.
Terrestrial Ecology	Destruction of terrestrial habitats and loss of individuals of some species on the mine site; creation of modified habitats following reclamation.	Same as Farmland's proposed action, except that the wildlife habitat on the reclaimed mine site will be more extensive (both marsh and forest).	No change in existing terrestrial ecology.	Possibly more effective reclamation and wetlands restoration.	Probable creation of increased reclaimed land areas (waste clays) of limited use (e.g., pasture).
Socioeconomics	Generation of jobs with comparatively high incomes; ad valorem and sales tax revenue for Hardee County; severence tax revenue for the state, Land Reclamation Trust Fund, and Florida Institute of Phosphate Research; some population influx to Hardee County; increased demands for housing, transportation, fire protection, police, and medical services.	Same as Farmland's proposed action.	Loss of jobs which would be generated by the project; loss of tax revenue for Hardee County and the State; less demand for transportation, housing, fire protection, police and medical services; continuation of phosphate rock market uncertainties for Farmland and a loss of their investment.	Continuation of phosphate rock market uncertainties for Farmland and potential increased project costs; possible improvement in supply/demand for housing in Hardee County.	Same as Farmland's proposed action.

All questions and comments on the DEIS, written and verbal, are individually addressed in Section 3, Public Participation, of the Final EIS. Comments that resulted in changes to EPA's recommendations are discussed in the following paragraphs.

U.S.D.A. Forest Service comments on the DEIS resulted in the expansion of NEPA requirement No. 8 of the Draft NPDES permit by the additional requirement that Farmland coordinate with the District State Forester regarding the forestry aspects of the reclamation plan.

Careful consideration of Farmland's comments on the technical feasibility of certain of EPA's recommended mitigating measures brought about minor changes in those recommendations. Since the spoiling of the leach zone, required by EPA, precludes maximum theoretical high profile stacking of overburden, NEPA requirement No. 2 of the Draft NPDES permit has been revised to require high profile stacking in Settling Area II to the maximum extent compatible with toe spoiling, with any gain in waste storage volume to be reflected in a lower reclamation profile.

Secondly, because the EPA-recommended change in the proposed temporary division of Hickory Creek (NEPA requirement No. 12) would have required a major change in the recommended mining and reclamation plan, this proposed NPDES permit condition has been revised to provide for water quality monitoring in both Hickory Creek and Troublesome Creek. Similarly, the recommendation (NEPA requirement No. 13) to avoid active mining on both sides of lower Hickory Creek at the same time (a situation which would occur only for a few months during mine year 12) would also require a major change in the mining and reclamation plan recommended by EPA. Therefore, this draft permit condition has been revised to require (1) monitoring of the Surficial Aquifer level within the preserved area, and (2) a maximum allowable limit of 3 feet that the Surficial Aquifer within the preserved area may be lowered due to the mining activities. Where necessary to prevent exceeding the 3-foot limit, Farmland must employ rim-ditching, rapid refilling of mine pits, or other appropriate measures.

Lastly, at Farmland's request, EPA has revised NEPA requirement No. 14 to allow that the Surficial Aqufier be monitored for the life of the mine or until such time that EPA and Farmland agree that the compiled date indicate no adverse effect on the Surficial Aquifer.

U.S. Department of the Interior comments on the DEIS included a discussion of the uncertainties of wetlands reclamation and the need for contingency plans should the proposed wetland reclamation fail. Although Farmland is committed, by both state and Federal requirements, to successful restoration of the given acreages of wetlands, EPA recognizes the need for a mechanism to monitor the results of the restoration effort. This would identify areas where changes or improvements in the restoration program are required, as well as provide valuable information on wetlands restoration in general. Therefore, EPA has developed a wetlands restoration monitoring program, given as NEPA requirement No. 15 of the Draft NPDES permit (previous No. 15 is now No. 17).

The Department of the Interior also pointed out the need to address paleontological resources on the site and impacts on those resources. Since there is great potential that fossil remains will be discovered during the mining of the Farmland site, EPA proposes the addition of NEPA requirement No. 16 to the Draft NPDES permit, requiring that Farmland provide to bonafide researchers and professionals for salvage of specimens and information.

8. Agency Decision:

The Final Areawide Environmental Impact Statement for the Central Florida Phosphate Industry (AEIS) published by EPA in November 1978 established a set of recommendations for future phosphate industry operations in Florida which was determined to be as compatible as practicable with other desired and intended land uses. Section 6 of the Farmland DEIS provided a detailed comparison between Farmland's proposed project and the AEIS recommendations. The Farmland proposal conforms to all recommendations except in one area, i.e., the AEIS-recommended use of connector wells to recharge the Surficial Aquifer. However, the AEIS also noted that the drained water should be monitored to assure that it meets recommended drinking water criteria. In the case of Farmland, high gross alpha radiation levels, exceeding drinking water standards, were found in the Surficial Aquifer water at the Farmland site. Therefore, Farmland does not propose to use connector wells to recharge the Floridan Aquifer, and the use of such wells is neither required by Farmland's SWFWMD Consumptive Use Permit nor recommended by EPA in this site-specific EIS.

Therefore, pursuant to provisions of the Clean Water Act of 1977, EPA proposes to issue an NPDES permit to Farmland for their proposed Hardee County, Florida phosphate mine. The proposed permit will impose as conditions the performance of all mitigating measures identified in Farmlands proposed action as well as those additional mitigating measures recommended by EPA, including the revisions and additions resulting from comments on the DEIS.

FINAL ENVIRONMENTAL IMPACT STATEMENT

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1.0

PREFACE

In May of 1981, the Environmental Protection Agency published and distributed a Draft Environmental Impact Statement (DEIS) on the proposed Farmland Industries, Inc. Phosphate Mine. The DEIS was written pursuant to the National Environmental Policy Act (NEPA) of 1969. While the DEIS was a complete document, much of the detailed technical information and supporting data were presented in a two-volume Supplemental Information Document. The DEIS was distributed to the appropriate Federal, State, and local agencies and to interested individuals. The Supplemental Information Document was available for review at a number of locations and was distributed on a limited basis.

This Final Environmental Impact Statement (FEIS) has been prepared to conform with the Council on Environmental Quality (CEQ) regulations (40 CFR Part 6) for implementing NEPA. The essence of the NEPA decision process is contained in the Summary Sheet for the FEIS; it describes the existing problem requiring a decision, summarizes alternatives--including mitigative measures--and their associated impacts, identifies major concerns and issues, and presents EPA's conclusions and decision.

In an effort to avoid excessive paperwork and costly reproduction, the DEIS text has not been reprinted in the FEIS. The supporting information furnished in the DEIS and its Supplemental Information Documents should be reviewed and are incorporated herein by reference.

Chapter 2, Errata, is comprised of the corrections to substantive errors and omissions in the DEIS and resource documents as well as all recognized typographical and minor errors.

Chapter 3 contains a description of the public participation program conducted for the EIS. Included in this chapter are copies of written communications submitted to EPA in response to the DEIS, followed by EPA's responses to each individual comment. These are followed by a transcript of the public hearing on the DEIS and a point by point response to the hearing comments.

Chapter 4 of the FEIS lists the agencies and groups to whom the FEIS will be sent for review and comment and Chapter 5 identifies the individuals involved in its preparation. An appendix to the FEIS contains the Draft NPDES permit.

In accordance with CEQ regulations, there will be a 30-day review and comment period following publication of this FEIS and its filing with the CEQ.

2.0

ERRATA

Page	Paragraph	Line	Correction
2-25	1	2	Omit "nearly" and "(98 percent)".
3-139	1	7	Following "...seven county region..." insert "(Charlotte, DeSoto, Hardee, Hillsborough, Manatee, Polk, and Sarasota Counties)".
3-140	1	1	Omit ..."of"... and replace with "less than".
3-145	4	3	Continue paragraph with "...screened from view. As mining progresses and reclamation lags behind, impacts would become cumulative and would be noticeable to some degree from any of the bordering roadways. However, the human perception information in Section 3.8.1 indicates that on a regional basis few people would see the mining development. Locally, the mining development would totally change the existing rural character. Reclamation and revegetation would eventually restore most of the rural visual quality, but total restoration would take 24 years to complete. Total revegetation to similar existing conditions would take longer. The visual impacts to the rural quality of this stie would be repeated with additional mining proposals nearby creating areawide cumulative impact."

3.0
PUBLIC PARTICIPATION

The Draft Environmental Impact Statement (DEIS) was published in May 1981 and made available to the Council on Environmental Quality and the public. A public notice appeared in the local newspapers. The Federal Register (Volume 46, No. 108) dated June 5, 1981, announced the availability of the DEIS and the proposed issuance of an NPDES permit. The DEIS was provided to numerous Federal, State, and local agencies as well as concerned individuals, interest groups, and public officials.

A notice of the public hearing was published on May 29, 1981. The public hearing was held in Wauchula, Florida, July 14, 1981 and was attended by 47 participants. The comment period on the DEIS remained open through July 28, 1981. In addition to the public input afforded by the hearing (transcript provided herein), a number of letters were received during the comment period and are included in this Final EIS.

The designations in the margins of the letters (W-1 thru W-38) identify those specific comments for which responses have been developed. These responses follow the letters. In a similar manner, the designations in the margins of the hearing transcript (T-1 thru T-5) identify those comments which have been responded to in the pages immediately following the transcript.

3.1 WRITTEN COMMENTS

U.S. DEPARTMENT OF ENERGY

ROUTING AND TRANSMITTAL SLIP

Date 6/5/81

TO: (Name, office symbol, room number, building, Agency/Post)	Initials	Date
1. Jean Tolman		
2.		
3.		
4.		
5.		

	Action		File		Note and Return
	Approval		For Clearance		Per Conversation
	As Requested		For Correction		Prepare Reply
	Circulate		For Your Information		See Me
	Comment		Investigate		Signature
	Coordination		Justify		

REMARKS

Thank You for the opportunity to review this EIS, however, we have a "no comment" response therefore we are sending you back the documents.

DO NOT use this form as a RECORD of approvals, concurrences, disposals, clearances, and similar actions

FROM: (Name, org. symbol, Agency/Post)	Room No.—Bldg.
Jill Sperling, NEPA Affairs Division	4G-064 - Ftsl.
	Phone No. 252-6374

5041-102

OPTIONAL FORM 41 (Rev. 7-76)
Prescribed by GSA
FPMR (41 CFR) 101-11.206

☆ U S GOVERNMENT PRINTING OFFICE: 1979—281-184/1

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE

1720 Peachtree Road, N. W.
Atlanta, Georgia 30367

1950
June 5, 1981

Ms. A. Jean Tolman, EIS Project Officer
U. S. Environmental Protection Agency
345 Courtland St., NE
Atlanta, Georgia 30365

Dear Ms. Tolman:

We have reviewed the Draft EIS for the Farmland Industries Phosphate Mine and Beneficiation Plant, Hardee County, Florida, and have the following comments.

1. Overall, the draft EIS was well written with a good reclamation plan for the disturbed phosphate mining areas. However, there will be a 30 percent loss (790 acres) of pine flatwoods, (583 acres) and wetland communities (207 acres) in the post reclamation land use. This loss of natural vegetation will have a large impact on the terrestrial ecology and wildlife habitat than will the loss of agriculturally managed lands. It would seem that high yielding well-managed pine plantations on the pine flatwood and some pasture sites would produce at least 150 board feet per acre per year through a rotation. Some thought should be given to establishing slash pine plantations on good forest sites in the area. W-2

It is suggested that Farmland contact the District Forester or the State Forester, Florida Forest Service to request assistance on the forestry aspects of the reclamation plan and its implementation. The State Forester's address is Mr. John Bethea, Director, Division of Forestry, Florida Department of Agriculture and Consumer Services, Collins Bldg., Tallahassee, FL 32301.

2. Some mention should be made of plans to salvage commercial timber and pulpwood in areas that will be clearcut prior to mining operations. W-3

3. The draft statement notes that the construction and operation of the facility will remove a small percentage of the total amount of the affected vegetative communities found in Hardee County. The loss of 5,280 acres of the various ecotypes, i.e. pine flatwoods, upland forests, swamps, wetlands, lakes, citrus groves, and pastures, may be insignificant when compared to Hardee County and Florida as a whole. However, with the thousands of acres of Florida citrus groves, pastures, forest lands, wetlands, swamps, lakes, etc., being lost annually to urban development and sprawl, industrialization and road construction; W-4

it is only a matter of time until many of these vegetative communities will be gone and the problem does become significant. It is extremely important that the mitigative measures indicated in the reclamation plan be carried out to the extent they have been written.

W-4 (cont.)

4. Another important concern which we have is the effect of the use of large quantities of ground and surface water for the mining and beneficiation process. The presented data shows there will be little affect on water levels and water supplies necessary for the mining process as well as the irrigation systems and wells already in operation. However, if more mining operations were started and more wells for irrigation drilled in Hardee and surrounding counties, there no doubt would be an adverse effect on the water tables, levels, and aquifers especially in times of low rainfall and drought. Water levels and water quantities and qualities should be constantly monitored to make certain that aquifers are being recharged and not being destroyed when actual mining operations are being conducted.

W-5

We appreciate the opportunity to review this draft EIS and look forward to receiving a copy of the final when it is published.

Sincerely,

LeRoy Jones

For ROBERT D. RAISCH
Area Director

DEPARTMENT OF DEFENSE

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS UNITED STATES AIR FORCE
WASHINGTON, D.C. 20330

10 JUN 1981

Ms. A. Jean Tolman, EIS Project Officer
U.S. Environmental Protection Agency
Region IV
345 Courtland Street, N.E.
Atlanta, Georgia 30365

Dear Ms. Tolman

We have reviewed the Draft Environmental Impact Statement on the Farmland Industries, Inc. Phosphate Mine in Hardee County, Florida and have no objection.

W-6

Sincerely

Robert L Klingensmith

ROBERT L. KLINGENSMITH, COL, USAF
Chief, Environmental Division
Directorate of Engineering & Services

Florida Department of Transportation

Haydon Burns Building, 605 Suwannee Street, Tallahassee, Florida 32301, Telephone (904) 488-8541

BOB GRAHAM
GOVERNOR

JACOB D. VARN
SECRETARY

June 11, 1981

Ms. A. Jean Tolman
EIS Project Officer
U.S. Environmental Protection Agency
Region IV
345 Courtland Street, N.E.
Atlanta, Georgia 30365

Dear Ms. Tolman:

Subject: Draft EIS - 4SA
Farmland Industries, Inc.
Phosphate Mine
Hardee County, Florida

We have reviewed the Draft Environmental Impact Statement and offer the following observations.

1. The Department of Transportation prefers the Slurry Matrix Transport alternative. If Matrix Slurry is transported via pipeline to the beneficiation plant from the phosphate mine, and then by rail to the phosphate fertilizer plants, we foresee no involvement from a highway standpoint. However, if the proposed 8,000 foot long railroad spur crosses any state highways, we anticipate normal safety precautions be included in the design of the at-grade rail crossings. W-7

2. No problems are expected due to the addition of 70 rail car trips per day on the existing Seaborad Coastline Railroad track in terms of time delay at crossings. W-8

3. The Department endorses the use of carpooling for commuters to reduce such negative effects as increased fuel consumption, noise and reduced air quality. W-9

We appreciate the opportunity to comment.

Sincerely,

for Buddy Cernill
C. L. Irwin, Administrator
Environmental Impact Review

CLI:lmd

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
ATLANTA REGIONAL OFFICE
RICHARD B. RUSSELL FEDERAL BUILDING
75 SPRING STREET, S.W.
ATLANTA, GEORGIA 30303

REGION IV

IN REPLY REFER TO:
4C

June 19, 1981

Ms. A. Jean Tolman
EIS Project Officer
Environmental Protection Agency
Region IV
345 Courtland Street, N.E.
Atlanta, Georgia 30365

Dear Ms. Tolman:

The Department of Housing and Urban Development Region IV Regional Office wishes to offer the following comments on the Draft Environmental Impact Statement (DEIS) for Farmland Industries, Inc., Phospate Mine, Hardee County, Florida.

1. At this time the proposal does not appear to have a potential for impacting existing or ongoing HUD projects in the immediate vicinity of the proposed mining area. However, according to unofficial reports from local agencies in jurisdictions adjacent to Hardee County, there is concern over the potential transmission of increased radiation levels in the subsurface strata of water tables, particularly at those levels where wells are used to provide irrigation for lawns and gardens in housing developments. W-10

2. Mining, as noted in Section 2.9.1 (pg. 2-26), will elevate gamma radiation levels and increased exposure to Rn 222. If EPA's consideration of radon exposure as representing a linear, non-threshold effect is true then public health risks will be increased. W-11

3. We concur in EPA's preferred alternative and the mitigating measures as proposed if the reclaimed areas are used exclusively for agricultural purposes. However, since it is probable that residential structures will be constructed on reclaimed land, the EIS should indicate how the different soil radium levels will affect interior spaces, the probability of health risk and preventative measures that should be taken to reduce the potential for unsafe concentrations of radon daughters in the homes. W-12

We appreciate the opportunity to review and comment on this DEIS.

Sincerely,

for John

Clifton G. Brown
Regional Administrator

DEPARTMENT OF THE AIR FORCE
REGIONAL CIVIL ENGINEER, EASTERN REGION (HQ AFESC)
526 TITLE BUILDING, 30 PRYOR STREET, S.W.
ATLANTA, GEORGIA 30303

PLY TO
TN OF: ROV2 7 July 1981

BJECT: Draft Environmental Impact Statement (DEIS), Farmland Industries, Incorporated Phosphate Mine, Hardee County, Florida

TO: U. S. Environmental Protection Agency
Region IV
ATTN: Ms. A. Jean Tolman
EIS Project Officer
345 Courtland Street, N. E.
Atlanta, Georgia 30365

We have reviewed the subject DEIS and find it will have no adverse impact on Air Force operations in Florida. Thank you for the opportunity to review this DEIS. Our point of contact is Mr. Winfred G. Dodson, telephone number 221-6821/6776.

Thomas D. Sims

THOMAS D. SIMS
Chief
Environmental Planning Division

Cy to: 56 CSG/DEEV

W-13

COOP

FARMLAND INDUSTRIES, INC.

post office box 7305/kansas city, missouri 64116

REPLY TO:
P. O. Box 441
Mulberry, Florida 33860
Phone: 813-425-4981

14th July, 1981

Jean Tolman
Environmental Protection Agency
345 Courtland Street
Atlanta, Georgia 30308

RE: Farmland Industries, Inc.
Hickory Creek Mine (Hardee County, Florida)

Dear Jean:

Farmland Industries, Inc. respectfully submits the attached comments on the Draft Environmental Impact Statement for its Hickory Creek Mine. We think the EIS is well prepared and we appreciate the efforts by EPA to conduct a thorough and accurate review. We do wish to point out that the NPDES permit (Appendix A of the EIS), state certification under Section 401 of the Clean Water Act and NEPA procedures are highly interrelated matters. Thus, our comments pertain to the EIS, the NPDES permit, and the state certification process. Those comments relating to the NPDES permit are submitted in compliance with both EIS procedures and Section 124.13 of the consolidated permit regulations [45 Fed. Reg. 33490, May 19, 1980 (to be codified at 40 C.F.R. § 124.13].

We appreciate your cooperation and hope you will contact us if we can be of further assistance.

Yours truly,

C. Richard Murphy
Executive Director
Phosphate Manufacturing

CRM/jm

COMMENTS TO EPA'S RECOMMENDED CONDITIONS AND MITIGATING MEASURES INCLUDED IN DRAFT NPDES PERMIT

I. Effluent Limitations

The Draft NPDES permit establishes the following effluent limitations.

1. Total Suspended Solids: 30 mg/l Daily Average
   60 mg/l Daily Maximum
2. Biochemical Oxygen Demand: 2 mg/l Daily Average
   (BOD$_5$) (5-Day) 3 mg/l Daily Maximum
3. Specific Conductance: 550 Daily Average
   (mhos/cm @ 25° C) 1100 Daily Average
4. Radium: 5pci/l
   10pci/l
5. Flow: 2.51 m^3/Day (MGD)
6. The pH shall not be less than 6.0 standard units nor greater than 8.5 standard units.
7. The flow at Hickory Creek must be at least 1.8 times the discharge flow to the Creek.
8. The flow in Oak Creek must be at least 1.6 times the discharge flow to the Creek.

Response

Farmland has no objection to the effluent limitations that incorporate the published EPA guidelines for pH and TSS. We understand the other discharge limitations contained in the Draft NPDES Permit are based on EPA's expectation of the limits to be required by the Florida Department of Environmental Regulation (DER). The State, however, has indicated that routine requirements may not be adequate for the Hickory Creek mine, and may apply special conditions. These conditions are being discussed with DER at the current time. Accordingly, Farmland requests that the Draft NPDES Permit be revised to incorporate the published EPA guidelines and simply state that any conditions imposed by DER will be incorporated by reference in the federal permit. Farmland agrees to comply with the published EPA limitations and any state conditions imposed following discussions and other proceedings with DER.

II. MITIGATING MEASURES

These comments are directed to the indicated mitigating measure and all related information in the Environmental Impact Statement and supporting documents.

EPA Recommendation 2

Farmland shall perform the dragline mining operation in a fashion that increases the casting distance of the overburden, causing the overburden to be piled higher and thereby increasing by approximately 10 percent the below ground volume available for waste disposal and lowering the above ground profile of Settling Area II by approximately four feet.

Response

Farmland agrees to utilize high profile stacking of overburden in the mining areas covered by Settling Area II. However, Farmland does not believe that it is appropriate to lower the dam height of Settling Area II from 35 to 31 feet for the following reasons:

* Additional volume within a settling area can only be created by stacking overburden above the maximum waste disposal level. Since much of the overburden material in the upper portion of the spoil piles will be borrowed to construct the retaining dam, it is likely that very little overburden material will remain above the waste disposal level in Settling Area II, even if high profile stacking is used.

* The toe spoiling requirement (EPA Recommendation 5) requires that the leach zone strata be spoiled at the bottom of the mine pit which may preclude maximum theoretical high profile stacking of overburden.

* One of the primary reasons for keeping Settling Area II active throughout the life of the mine is to retain the area as an alternate waste disposal area. During mining operations, localized concentrations of high clay ore may be encountered. Settling Area II will provide an outlet for clay periodically generated in excess of the sand-clay mixing capability of the mine. Lowering the dam height by four feet does not, in Farmland's opinion, justify the loss in alternative waste disposal volume that would result.

W-15

As shown by the proposed use of the sand-clay mix technique (with dam heights from 11 to 20 feet), Farmland is committed to minimizing overall dam heights by maximizing below grade storage of wastes. However, because of the above considerations, Farmland believes that the dam height for Settling Area II should remain 35 feet as originally proposed. High profile overburden stacking will be used in the mining of the area covered by the settling area to the maximum extent compatible with the toe spoiling requirement. Any increased waste storage volume achieved by this technique will be realized in a lower reclaimed elevation for the area even if the originally proposed dam height of 35 feet is retained. At the same time, the alternative waste disposal storage volume will be retained for use if needed. W-15 (cont.)

EPA Recommendation 5

During the dragline mining activity, Farmland shall employ the technique of leach zone management by toe spoiling, i.e., overburden from near the interface with the matrix (the leach zone, where radioactivity in the overburden is concentrated) shall be placed at the toe of the spoil pile and covered with overburden from upper strata.

Response

Farmland agrees to utilize the recently introduced technique of toe spoiling in mining areas where prospecting has identified the presence of a leach zone layer overlying the matrix interface. W-16

EPA Recommendation 8

Farmland shall increase the acreage reclaimed as forest habitat and provide corridors for wildlife movement between reclaimed and preserved areas by planting additional areas as depicted in Figure 2, attached.

Response

Farmland agrees to expand its upland reforestation plantings as depicted in Figure 2, Appendix A of the Draft NPDES Permit for the Farmland Industries, Inc. Mine Project, Hardee County, Florida. W-17

EPA Recommendation 9

Farmland shall incorporate into its reclamation plan a littoral zone at the downstream extent of the proposed reclaimed open lake in the Hickory Creek channel. This littoral zone shall be at least 500 feet wide and at a depth suitable for emergent vegetation, providing for the establishment of 710 acres of marsh community.

Response

Farmland will establish a littoral zone at the downstream extent of the reclaimed lake proposed for the reclamation of Hickory Creek. The original reclamation plans for the lower portion of this lake system provided for an open lake approximately 600 feet wide and 3000 feet long created by double spoiling the mine cuts in this area. The original plans also provided for a 100-foot wide littoral zone approximately 1-3 feet deep along the eastern margin of the lake and for filling the remainder of the lake as necessary with sand tailings to establish a maximum water depth of 15 feet.

In order to create the desired littoral zone at the downstream extent of the reclaimed lake, sand tailings fill will be placed in the mine cut to within 3 to 5 feet of the planned water elevation. An overburden cap of 1 to 2 feet will then be established over the tailings fill to provide a final water depth of 1 to 3 feet and a suitable substrate for emergent vegetation. The lower 900 feet of the open lake will be reclaimed in this manner to create an additional 10 acres of freshwater marsh. W-18

The reclaimed lake will continue to intercept the undisturbed lower portion of Hickory Creek at an elevation of 65 feet MSL. This elevation will serve as the outfall elevation into the natural stream channel and establish the water level in the entire lake system. The reclaimed marsh will therefore serve as a wetland filter for flow exiting the lake system into the undisturbed portion of Hickory Creek.

EPA Recommendation 10

Before beginning any land-disturbing activities, Farmland shall develop a program wherey indigo snakes encountered in the work area are captured for relocation to other areas of suitable habitat in the site region. This program shall include informing Farmland workers of the importance of the indigo snake, familiarizing them with its appearance and instructing them as to its preservation. In addition, the gopher tortoise population shall be protected to the extent possible in the site area. Farmland shall coordinate its recovery and relocation efforts with the Florida Endangered Species Coordinator, and shall maintain a record of the program to be submitted to the U.S. Fish and Wildlife Service.

Response

Farmland will institute the recommended program for reducing impacts on the indigo snake and the gopher tortoise. Prior to W-19 beginning operations, Farmland will work with the Florida Endangered Species Coordinator to develop a program that is acceptable to both parties.

W-19 (cont.)

EPA Recommendation 11

Farmland shall comply with the categorization of wetlands present on the mine property as set forth in the EIS and illustrated in Figure 3, attached. In summary, within Category 1 wetlands, Farmland shall not mine, shall limit activities to those essential to and unavoidable for the mining opeation, and shall otherwise take all reasonable measures to preserve all Category 1 wetlands. Additionally, Farmland shall restore the total acreage of Category 2 wetlands disturbed by mining. Specifically, the acreage to be restored as freshwater marsh or swampt according to Farmland's proposed action in the EIS shall be increased by at least 116 acres (from 398 acres to a minimum of 514 acres). This shall be done my differential grading and settling of sand-clay mix areas in addition to that already proposed by Farmland in the EIS.

Response

Farmland will comply with the categorization of wetlands presented in the EIS, protect all Category 1 wetlands from mining or related disturbance, and reclaim all other wetlands from disturbed by mining. According to the plans presented in the EIS, no Category 1 wetlands are to be mined or otherwise disturbed by the proposed operation. However, 514 acres of Category 2 and 91 acres of Category 3 wetlands are included in the mine and waste disposal plans. The reclamation plan proposed in the EIS provides for the reclamation of 398 acres of wetlands.

W-20

Since the EIS reclamation plans were submitted, mandatory State reclamation requirements for wetlands (Chapter 16C-16, FAC) have been revised. Farmland has therefore revised its reclamation plan to reclaim 207 additional wetland acres. The primary increase in reclaimed wetland acreage will be provided by expanding the shallow depressions proposed around the outlet end of sand-clay mix reclamation areas. The depressions will be expanded to cover approximately ten percent rather than five percent of each sand-clay reclamation area. The expansion will be achieved by controlled grading of overburden spoil and by raising the elevation of the overflow drainage swales. For the 3,628 acres of sand-clay mix reclamation areas (excluding the two special mix areas specifically scheduled for wetland reclamation), this expansion will result in 182 additional reclaimed wetland acres.

A further change in mandatory State reclamation standards requires that at least 25 percent of the high water surface of reclaimed lakes consist of an annual zone of water fluctuation to serve as the wetland component of the lakes. The large reclaimed lake in Sections 34 and 35, T345, R24E and the reclaimed lake system created for the reclamation of Hickory Creek both have sufficient littoral zone to meet this requirement. However, the 59 acre lake which serves as the clear water pond during the life of the mine has no planned wetland component. Provision for the required 25 percent wetland zone in this reclaimed lake will provide the necessary 15 additional wetland acres. The following table summarizes Farmland's expanded wetland reclamation plans:

Expanded Wetland Area	Additional Wetland Acreage
Expansion of Depressions in Sand-Clay Mix Areas (from 5 percent to 10 percent of reclamation area)	182 acres
Littoral Zone at Downstream Extent of Hickory Creek Reclamation Area	10 acres
Zone of Fluctuation in Reclaimed Clear Water Pond	15 acres
TOTAL	207 acres

W-20 (cont.)

The revised wetland reclamation plans will therefore meet mandatory State requirements and exceed Category 2 wetland reclamation requirements of the Draft NPDES permit.

EPA Recommendation 12

During the mining of the unpreserved portion of Hickory Creek, the flow from this area shall be diverted around the active mine area into the lower preserved section of Hickory Creek (rather than to Troublesome Creek).

Response

W-21

Farmland believes that the temporary diversion of Hickory Creek to Troublesome Creek as originally proposed is the preferred alternative from the standpoint of water quality protection and the sand-clay mix reclamation program. Farmland also believes that this diversion can be accomplished without permanent adverse impacts on the downstream vegetation.

The flow in Hickory Creek is intermittent and periods of no flow are common in the dry season. The vegetation in the undisturbed lower portion of Hickory Creek is therefore adapted to short-term no flow periods. The mining and reclamation of the area has been scheduled to be carried out as rapidly as possible. Mining of the area is planned to take place over a period of slightly over two years, beginning in year 12 and ending early in year 14. Physical reclamation and revegetation of the area will require a period of slightly over two years, beginning in year 12 and ending early in year 14. Physical reclamation and revegetation of the area will require a period of two years before the creek is rerouted through the system. Therefore, although the upstream flow will be cut off for slightly over four years, runoff from mining blocks 12 and 13 wil continue to enter the existing channel until the areas are mined. Moreover, the undisturbed lower portion of the creek lies in a deeply incised area and will continue to receive direct rainfall inputs as well as runoff from offsite areas to the south even after mining of the upstream portion is complete. Farmland therefore believes that, although the area may be subject to stress, there will be no permanent damage to the overstory vegetation.

In developing the proposed diversion plans, Farmland gave careful consideration to protection of water quality. Both the diversion channel to Troublesome Creek and the reclaimed channel of Hickory Creek are to be stabilized and the banks revegetated prior to allowing flow to enter the channels. A period of two years has been allowed to reclaim, stabilize, and revegetate the channel for Hickory Creek while flow is diverted to Troublesome Creek. The alternative of creating a diversion channel through a recently mined area might pose water quality problems downstream.

W-21 (cont.

The mining block scheduled for year 13, which includes the lower portion of Hickory Creek, covers the entire area from Oak Creek Islands east to S.R. 661 (Figure 2-2, Draft EIS). With the present mine plan, it is not possible to divert Hickory Creek around the active mine area to intersect the undisturbed downstream segment. Such a diversion would require a major change in the mine plan. Since sand-clay waste disposal follows so closely behind mining, a change in the mine plan would also necessitate a major change in the reclamation plan.

In summary, Farmland anticipates some stress but no permanent damage to the downstream overstory vegetation because of the proposed temporary diversion of Hickory Creek to Troublesome Creek. The alternatives of diverting the flow around the active mining area to intersect the undisturbed portion of the creek would require major changes in the mining and reclamation plans and might pose a threat to downstream water quality. Therefore, Farmland believes that the temporary diversion to Troublesome Creek is the preferred alternative.

EPA Recommendation 13

Mining in the vicinity of lower Hickory Creek shall be scheduled such that open mine pits exist adjacent to only one side of the preserved portion of the creek at a given time.

Response

Mining is scheduled along both the north and south sides of the preserved portion of Hckory Creek in the second half of year 12 (mining blocks 12C and 12D, Figure 2-2 of the Draft EIS). The mining blocks are scheduled for immediate conversion to sand-clay mix reclamation areas (S/C 11 and S/C 12, Figure 2-6, Draft EIS). The waste disposal areas are to begin receiving sand and clay wastes in year 13. Open mine pits will therefore occur on both sides of the preserved area for a period of only a few months. Within a year after mining, the water table will have been reestablished on both sides of the area by the deposition of the sand and clay wastes in aqueous suspension. The period of moisture stress due to pit dewatering will therefore be very short-term. W-22

A change in the mine plan to avoid the short-term condition of open mine pits on both sides of the preserved area would also require a change in the sand-clay mix reclamation plan. The accommodation of the sand and clay wastes within the low level dams proposed in the EIS requires that waste disposal follow almost immediately after mining. As with the case of the temporary diversion of Hickory Creek to Troublesome Creek, Farmland expects no permanent damage to the vegetation in the preserved area and does not believe that the short-term stress is sufficient to justify a change in the mine and reclamation plans.

EPA Recommendation 14

Farmland shall monitor the water quality of the Surficial Aquifier at the location identified on the attached map, Figure 3. The following parameters shall be monitored on a quarterly basis for the life of the mine: ph, specific conductance, sulfates, fluoride, and ammonia. A written report summarizing the data shall be submitted once a year to EPA.

Response

Farmland will establish a Surficial Aquifer monitoring station at the location identified on Figure 3, Appendix A, Draft NPDES Permit for the Farmland Industries, Inc. Mine Project, Hardee County, Florida. Monitoring for the indicated parameters will continue for the life of the mine or until such time that the EPA and Farmland agree that the compiled data indicates no adverse impact on the Surficial Aquifer. W-23

DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT. CORPS OF ENGINEERS
P. O. BOX 4970
JACKSONVILLE. FLORIDA 32232

SAJPD-ES 17 July 1981

Ms. A. Jean Tolman
EIS Project Officer
Environmental Protection Agency
Region IV
345 Courtland Street, NE
Atlanta, Georgia 30365

Dear Ms. Tolman:

Reference is made to the Draft Environmental Impact Statement (DEIS) for Farmland Industries, Inc. Phosphate Mine in Hardee County, Florida, furnished this office on 29 May 1981. The Corps of Engineers is a cooperating agency for this EIS.

Review of the DEIS reveals that sufficient factual information is presented to identify areas of importance comprising those wetlands subject to Department of the Army regulatory authority. The alternatives to such work as presented in the draft, however, are related to an artificial categorization of such wetlands as Class I (preserve), Class II (mine and restore) and Class III (mine with no restoration).

These categories remain inconsistent with this office's disposition to consider the overall impacts of such work as it relates to regulated fill work and with the requirements of our regulations to assess the important functions (or lack thereof) of all wetland subject to Corps authority. In addition, we must determine whether the proposed work is primarily dependent upon location in (or in close proximity to) the aquatic environment and whether feasible alternative sites are available and practicable.

W-24

These analyses have been reinforced by EPA regulations as well, whereas the artificial categorization of such wetlands is sanctioned neither by Federal law nor by published regulations. Therefore, this is to advise your office and the applicant that the Corps will conduct its public interest review of the environmental impacts as required by regulation based upon both information obtained from the EIS as well as from the additional sources of input received in response to public notice and hearings as required in processing the completed permit application for all project work.

In this regard, this office will explore all feasible and practical alternatives identified in the permit public interest review process as well as those which become apparent from our review. On the basis of this

W-24 (cont.)

information, the EIS information and requisites of our current regulations, decisions on all related applications by Farmland Industries, Inc. will be made.

The Jacksonville District remains prepared to consider all concerns and to review all proposals and alternatives in this regard. Please contact Mr. Victor Anderson, Permits Section project manager, or Dr. Gerald Atmar, Chief, Environmental Studies Section, concerning 404 and EIS concerns respectively.

Sincerely,

Lloyd H Saunders
LLOYD H. SAUNDERS, Ph.D.
Acting Chief
Planning Division

DEPARTMENT OF HEALTH & HUMAN SERVICES Public Health Service

Centers for Disease Control
Atlanta, Georgia 30333

(404) 262-6649

July 22, 1981

Ms. A. Jean Tolman
EIS Project Officer
U.S. Environmental Protection Agency
Region IV
345 Courtland Street, N.E.
Atlanta, Georgia 30365

Dear Ms. Tolman:

We have reviewed the Draft Environmental Impact Statement (EIS) for the Proposed Issuance of a New Source National Pollutant Discharge Elimination System Permit to Farmland Industries, Incorporated, Phosphate Mine, Hardee County, Florida. We are responding on behalf of the U.S. Public Health Service and are offering the following comments for your consideration in preparing the Final EIS.

In general, we have no major objections to the proposed action, and we believe that long-term effects can be successfully minimized provided the mitigation measures outlined in the EIS are imposed upon the applicant.

We have some concern about the potential for radiation exposure of future populations living or working on this land. According to the EIS, the reclaimed farmland site ". . .will slightly exceed the recommended limit of .009 WL for slab-on-grade homes." Without special land use controls and local regulations, the applicant could affect the safe and healthful use of the disturbed lands in the future. Certain commitments by the applicant should be made to assure the safe use of any reclamation lands by future populations when such lands are sold. For example, consideration might be given to recording special deed restrictions so that all purchasers would be fully aware of the uses that could be made of the property. W-25

While connector wells will not be used to recharge the Floridan Aquifer with groundwater from the Surficial Aquifer because of the high gross alpha radiation levels found in the Surficial Aquifer, several references are made in the EIS on pages 3-64 and 3-88 about discharging uncontaminated water from the recirculating water system to deep aquifers. The EIS should clarify whether any well injection via connector wells will be performed by the applicant. W-26

According to the EIS, a housing demand for 330 to 580 housing units will be required for direct and indirect employment. The adequacy of local zoning, building, and sanitary codes to prevent poor construction and incompatible development should be discussed. W-27

The EIS should also discuss the impact of the proposal upon vector populations and whether any vector-borne disease patterns in the area would be affected. Will control measures be necessary? The vector management plan to be employed by the applicant should be described relative to the requirements of the local public health agency. W-28

We appreciate the opportunity to review this Draft EIS. Please send us one copy of the Final EIS when it becomes available.

Sincerely yours,

for Linda W Anderson
Frank S. Lisella, Ph.D.
Chief, Environmental Affairs Group
Environmental Health Services Division
Center for Environmental Health

United States Department of the Interior

OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20240

ER 81/1155

JUL 23 1981

A. Jean Tolman, EIS Project Officer
U.S. Environmental Protection Agency
Region IV
345 Courtland Street, N.E.
Atlanta, Georgia 30365

Dear Ms. Tolman:

We have reviewed the draft environmental impact statement for the Farmland Industries, Inc., Phosphate Mine, Hardee County, Florida, sent to us May 29, 1981. The document, in general, adequately discusses the probable impacts of the proposed mining operation on the various resources of concern to this Department. The following specific comments are provided for your consideration in preparing the final EIS.

Water Resources

The statement should discuss plans for monitoring the surficial aquifer in the vicinity of disposal areas for the sand and clay mixture. W-29

It is stated that at the site boundaries the drawdown of the potentiometric surface of the Floridan aquifer must be kept within a 5-foot limit, according to regulations of the Southwest Florida Water Management District unless a variance is obtained (p. 3-58). The Trescott model predicts a maximum steady-state drawndown of 31 feet (p. 3-58). The applicant plans to evaluate the effects of pumping the Floridan aquifer in detail with the Southwest Florida Water Management District (p. 3-58). If a variance is expected, the statement should evaluate more adequately the impacts of the project's ground-water withdrawals from the Floridan aquifer. If a staggered pumping schedule is planned, effects on the potentiometric surface should be evaluated. W-30

It is indicated in Sec. 2.5.1.2 that groundwater pumping would lower the potentiometric surface of the Florida Aquifer. Consideration should be given to the long term impact of groundwater withdrawal on the entire region under drought conditions. W-31

Wildlife Resources

There should be more discussion of the forested wetlands that are to be lost by this mining activity. Forested wetlands are extremely valuable fish and wildlife resource areas and they are being altered and/or destroyed much faster than they are being created. The creation of these areas requires many years and the techniques are not such that restoration is guaranteed. The net loss of 261 acres of forested wetlands should be addressed to a greater extent in the impacts sections of the statement. W-32

The proposed preservation of 2,530 acres is significant. However the rationale for establishing the preservation area boundaries is not clear. There appear to be blocks of wetlands adjacent to but outside the preserved areas that are proposed for mining. Conversely, there are several upland areas in the preservation area which appear to be minable. Selection of the areas to be mined should be explained more fully. W-33

Figure 3-12 includes "Category 2 Wetlands Disturbed" which is not discussed in the body of the report. The statement should include a discussion of the disturbed wetlands of this category and the tables on pages 3-114 and 6-8 should include acreages involved. W-34

Reclamation

Successful reclamation of wetlands subsequent to phosphate mining has not been demonstrated. To address this problem the Bureau of Mines' Tuscaloosa Research Center will begin a reclamation demonstration project on wetlands in Florida in FY 82.

The technical report (volume 1, page 2-35 Waste Sand and Clay Disposal Plan) states that "...the majority of the sand and clay wastes will be disposed through the sand-clay mix technique." It is not clear as to what Farmland Industries really proposes. Brewster Phosphates, Incorporated, has developed a sand-clay mix technique that in a small-scale test was successful; however, during large-scale operation serious problems were encountered and the company requested the State to approve a return to "state-of-the-art" clay storage techniques. An alternate sand-clay mix technique, "dredge-mix," has proven successful in the experimental stage, but more testing is needed. W-35

Several other techniques to dewater waste clays are presently being evaluated. Bureau of Mines rotary trommel-PEO and Enviro-Clear techniques each use a flocculant to achieve rapid dewatering. We believe that these techniques hold more promise in eliminating waste clay storage areas than the proposed sand-clay method. The preferred methods should eliminate above-ground clay storage areas.

In view of these uncertainties, we believe the reclamation of the mined wetlands needs more explicit discussion. Details should include species to be planted, planting methods, community-type proposed, surface contours and elevations to be created, and the method used to recontour the site. Discussion (page 3-126) implies that wetland reclamation on 181 acres is going to occur naturally, and there will be no specific effort to contour and recreate these wetlands. We believe that the chance of attaining the goal of 181 acres of wetlands under these conditions is not very high. Specific reclamation techniques for this acreage should be addressed. The statement should include a discussion of contingency plans if wetland reclamation as proposed fails. W-36

It is mentioned (p. 3-134) that a partial mammoth skeleton was removed from Hickory Creek in 1965 but no paleontological remains were found by Milanich and Willis. In view of the known occurrence, there should be some discussion as to the potential for further fossil finds in the area and possible impacts to these resources. W-37

Portions of the proposed work will require permits from the Corps of Engineers pursuant to Section 404 of the Federal Water Pollution Control Act. The Fish and Wildlife Service (FWS) will review project plans and offer specific recommendations with regard to mitigation and restoration of wetlands during consideration of the permit application by the Corps of Engineers, in accordance with provisions of the Fish and Wildlife Coordination Act. These comments do not preclude separate evaluation and comment by the FWS when reviewing the permit application. The FWS would be pleased to coordinate with you or the permit applicants to preclude delay and to insure that any recommended permit stipulations or conditions are understood and included in the final statement. Please consult with the Field Supervisor, Fish and Wildlife Service, P.O. Box 2676, Vero Beach, Florida 32960. W-38

We appreciate the opportunity to review and comment on this statement.

Sincerely,

Bruce Blanchard, Director
Environmental Project Review

GENERAL COUNSEL OF THE
UNITED STATES DEPARTMENT OF COMMERCE
Washington, D.C. 20230

JUL 2 4 1981

Ms. A. Jean Tolman
EIS Project Officer
Environmental Protection Agency
Region IV
345 Courtland Street, N.E.
Atlanta, Georgia 30365

Dear Ms. Tolman:

This is in reference to the draft environmental impact statement entitled, "Farmland Industries Phosphate Mine and Beneficiation Plant, Hardee County, Florida." The enclosed comment from the National Oceanic and Atmospheric Administration (NOAA) is forwarded for your consideration.

Thank you for giving us an opportunity to provide this comment, which we hope will be of assistance to you. We would appreciate receiving four copies of the final statement.

Sincerely,

Robert T Miki

Robert T. Miki
Director of Regulatory Policy

Enclosure Memo From: Robert B. Rollins
National Ocean Survey
NOAA

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SURVEY
Rockville, Md. 20852

JUL 13 1981 OA/C52x6:JVZ

TO: PP/EC - Joyce M. Wood

FROM: OA/C5 - Robert B. Rollins

SUBJECT: DEIS #8106.05 - Farmland Industries, Inc., Phosphate Mine, Hardee County, Florida

The subject statement has been reviewed within the areas of the National Ocean Survey's (NOS) responsibility and expertise, and in terms of the impact of the proposed action on NOS activities and projects.

Geodetic control survey monuments may be located in the proposed project area. If there is any planned activity which will disturb or destroy these monuments, NOS requires not less than 90 days' notification in advance of such activity in order to plan for their relocation. NOS recommends that funding for this project includes the cost of any relocation required for NOS monuments. For further information about these monuments, please contact Mr. John Spencer, Director, National Geodetic Information Center (OA/C18) or Mr. Charles Novak, Chief, Network Maintenance Branch (OA/C172), at 6001 Executive Boulevard, Rockville, Maryland 20852.

W-39

3.2 RESPONSES TO WRITTEN COMMENTS

Response W-1

No Response Required.

Response W-2

The loss of natural vegetation which results from clearing and mining the Farmland site will have a more significant impact on the terrestrial ecology of the site than will the loss of agriculturally managed lands. Replacement of some of the wildlife values (as well as timber resource) provided by the natural communities could be obtained through the establishment of slash pine plantations on reclaimed land. Farmland plans to utilize the first sand-clay landfill that becomes available during reclamation as an experimental revegetation area. This 236-acre area will be used to evaluate the growth of forage crops, truck crops, citrus, as well as commercial forest species on sand-clay mix "soils". Farmland has indicated that slash pine will be among the commercial forest species evaluated. In addition, EPA is proposing to expand NEPA condition No. 8 to the Draft NPDES permit to require that Farmland contact the District or State Forester (Florida Forest Service) for assistance in the forestry aspects of the reclamation plan.

Response W-3

Farmland has indicated that their plans for the clearing of areas to be mined include the salvage of commercial timber and pulpwood where sufficient quantities are present.

Response W-4

EPA notes the validity of the concern for cumulative effects of the loss of vegetative communities and recognizes the importance that the mitigation measures of the reclamation plan be fully implemented. To that end, the mitigation measures are included as conditions to the NPDES permit. Should these measures not be implemented, the permittee (Farmland) would become subject to any of the enforcement actions available to the EPA Administrator under Section 309 of the Federal Clean Water Act (33 U.S.C. 1319).

Response W-5

Farmland plans to monitor the levels and quality of the various aquifers present at the site. The Floridan and Secondary Artesian Aquifers will be monitored continuously at the site, while Surficial Aquifer levels will be monitored at five (5) locations monthly. Data collected will be reported on a quarterly basis. Additional continuous monitoring data will be obtained from two Southwest Florida Water Management District (SWFWMD) wells near the site. SWFWMD exercises regulatory jurisdiction related to consumptive use of water over substantially all of the Florida phosphate mining and chemical industry (both existing and proposed), including all of Hillsborough, Manatee, Sarasota, Hardee, and DeSoto Counties, substantially all of Polk County. and a large portion of Charlotte County. In order for more wells to be drilled in Hardee and surrounding counties, applications for Consumptive Use Permits (issued by SWFWMD) would have to be filed (as Farmland did).

The applicant for a SWFWMD Consumptive Use Permit carries the burden of demonstrating that the intended use will be reasonable and beneficial, consistent with the public interest and not interfere with any legal use of water existing at the time of application. Issuance of the permit will be denied if the intended withdrawal would cause any of the following results:

- Violation of minimum regulatory levels established for the flow of a stream or other watercourse, for the potentiometric surface or for surface water;
- Saltwater encroachment; or
- Lowering of the water table so that the lake stages or vegetation will be adversely and significantly affected on lands other than those owned, leased, or otherwise controlled by the applicant.

The Consumptive Use Permit will also be denied if the amount of water consumptively used will exceed the "water crop" on lands owned, leased, or otherwise controlled by the applicant. According to a statement of policy recently adopted by the Board of Governors of SWFWMD, the assumed size of the water crop throughout the District is

1000 gallons per acre per day. The actual water crop for a specific area may be significantly larger or smaller than this amount. The actual amount of the water crop for a particular area depends upon rainfall and evapotranspiration rates, which vary from area to area within the district.

The proposed withdrawal of water must not reduce the rate of flow of a stream or other water course by more than 5 percent at the time and point of withdrawal. It must not cause the level of the potentiometric surface under lands not owned, leased or otherwise controlled by the applicant to be lowered by more than 5 feet, nor cause the level of the water table of such lands to be lowered by more than 3 feet, nor cause the level of the surface of water in any lake or other impoundment to be lowered by more than 1-foot unless the lake or impoundment is wholly owned, leased or otherwise controlled by the applicant. Finally, the withdrawal must not cause the potentiometric surface to be lowered below sea level.

For good cause shown, SWFWMD may grant exceptions to criteria listed above, when after consideration of all data presented, including economic information, it finds that an exception is consistent with the public interest.

In addition to permitting withdrawals of water, SWFWMD may also approve "recharge wells" which drain water from upper strata (i.e., water table or overburden) to lower formations. Recharge wells, as a water management tool, may be required as a condition of consumptive use permits. They are not, however, a requirement of Farmland's SWFWMD permit.

Water from Farmland's production wells (Floridan Aquifer) will be collected monthly and analyzed for the following parameters:

pH	Total Nitrogen
Total Phosphorus	Total Dissolved Solids
Sulfates	Total Alkalinity
Chloride	Carbonate Alkalinity
Specific Conductance	Bicarbonate Alkalinity
Total Hardness (as $CaCO_3$)	Fluoride

Farmland has also agreed to monitor the Surficial Aquifer quarterly at a location specified by EPA for the life of the mine or until such time that EPA and Farmland agree that the compiled data indicate no adverse impact on the Surficial Aquifer. Samples obtained from the Surficial Aquifer will be analyzed for the following parameters:

pH
Specific Conductance
Sulfates
Fluoride
Ammonia

Response W-6

No response required.

Response W-7

The railroad spur from the existing Seaboard Coast Line Railroad track to the proposed Farmland beneficiation plant will cross S.R. 663. Farmland has confirmed that normal safety precautions (i.e., blinking signal lights) are to be included in the design of this at-grade rail crossing.

Response W-8

No response required.

Response W-9

No response required.

Response W-10

Naturally occurring radiation levels (gross alpha) in the Surficial Aquifer on the Farmland site are high relative to the Floridan and Secondary Artesian Aquifers. The proposed mining operations are not expected to significantly alter the radiation levels in subsurface strata of the site, nor to increase the transmission of the naturally occurring radionuclides to subsurface strata in adjacent areas.

Response W-11

Increased health risks would be limited to those associated with construction of residential structures on reclaimed land (see Response W-12).

Response W-12

Farmland proposes that the reclaimed mine site be used exclusively for agricultural/wildlife habitat purposes. Therefore, the health risks associated with the construction of residential structures on the reclaimed site should not occur. If such structures were constructed on reclaimed land, the health risk would be best described in terms of Working Level (WL) measurements. This issue was addressed in Section 3.3.2.2.4 of the DEIS and discussed in detail in Section 5.2.4 of the Supplemental Information Document. The following information is taken from the Supplemental Information Document. Indoor radon and radon progeny concentrations as measured by WL have been related to increased risk of lung cancer. Since indoor WL measurements are not possible before construction, considerable research effort has gone into preconstruction predictor measurements and the associated correlations.

Three parameters have been considered for prediction of indoor WL: external gamma exposure rate, soil radium, and surface radon flux. The prediction equations are as follows:

$$WL = 0.0022\ (G-3.6)^{1.01}$$

$$WL = 0.0065\ (C_{Ra})^{0.563}$$

$$WL = 0.0087\ (J)^{0.461}$$

where

G = external gamma exposure, μR/hr

C_{Ra} = soil radium-226, pCi/g

and

J = surface radon flux, pCi/m^{2}s.

The predicted indoor WL by land type on the Farmland site after reclamation are as follows:

	Estimated WL		
Land Type	Gamma, μR/hr vs. WL	Ra-226, pCi/g vs. WL	Radon-222 Flux pCi/m^{2}s vs. WL
Overburden	0.014	0.011	0.0083
Sand-Clay Mix	0.019	0.013	0.0098
Waste Sand	0.013	0.011	0.0083
Waste Clay	0.029	0.018	0.013

Should buildings (such as residences) be located on the reclaimed Farmland site, indoor radon and radon progeny concentrations would be higher in these structures than outdoors. For any homes that were constructed, the predicted indoor radon progeny (WL) could range from a low of 0.011 over reclaimed sand and overburden tailings to a high of 0.018 WL over reclaimed clay settling areas. The value for homes over sand-clay mix areas would be 0.013 WL. In comparison, slab-on-grade structures in Polk County over undisturbed lands have WLs ranging from 0.001 to 0.010, with a geometric mean of 0.003. While areas of separately stored waste clay would represent the highest potential hazard, this material is one of the least attractive land types for home building because of foundation design problems. Furthermore, reclaimed clay areas only represent some 12 percent of the site. It should be noted that the WLs for the Farmland site discussed above were calculated without consideration of the addition of low activity topsoil to a potential development site or the imposition of some restrictions in the type of housing construction. Such measures should serve to mitigate the WL hazard satisfactorily.

In 1979, EPA provided the following specific guidance regarding the siting of new homes on any reclaimed, debris, and unmined lands which contain phosphate resources:

> "IV. Development sites for new residences should be selected and prepared, and the residences so designed and sited, that the annual average indoor ...." Working Levels "...do not exceed .... background levels...."

Following this guidance, the upper limit of predicted WLs in slab-on-grade homes is approximately 0.009 WL (normal background of 0.004 WL plus the uncertainty of 0.005 WL). Overall, the reclaimed Farmland site will slightly exceed this upper range. Therefore, if residences were planned they would have to be designed so as to prohibit the accumulation of radon progeny to levels above the .009 WL limit. (See also Response W-25.)

Response W-13

No response required.

Response W-14

The Florida DER limits referred to are the water quality standards contained in Chapter 17-3 of the Florida Administrative Code. These water quality standards were established in accordance with Section 303 of the Clean Water Act. Federal regulations (40 CFR 122.62[d][1]) require that the NPDES permit include conditions meeting any requirements in addition to or more stringent than promulgated effluent limitations guidelines necessary to achieve water quality standards established under Section 303. Therefore, EPA is unable to grant Farmland's request.

Response W-15

EPA recognizes the validity of the issues raised by Farmland regarding high profile stacking. Therefore, the mitigation measure and corresponding proposed permit condition (NEPA Requirement No. 2) are revised to read as follows:

Farmland shall employ high profile overburden stacking in the mining of the area covered by Settling Area II to the maximum extent compatible with the spoiling of the leach zone. Any increase in below ground waste storage realized by the use of this technique shall be reflected in a lower reclaimed elevation for Settling Area II.

Response W-16

No response required.

Response W-17

No response required.

Response W-18

No response required.

Response W-19

No response required.

Response W-20

No response required.

Response W-21

EPA recognizes the validity of the points raised by Farmland regarding the diversion of Hickory Creek under the current mine plan, and agrees that the impacts resulting from the short-term loss of flow to the downstream preserved portion of Hickory Creek do not warrant revision of the mining and reclamation plan for this purpose alone. While such an alteration could alleviate the short-term impacts of diverting water from Hickory Creek, it could at the same time result in the loss of certain desirable aspects of the reclamation plan. However, recognizing the concern for the maintenance of water quality in the preserved portion of Hickory Creek and in Troublesome Creek during the period of the Hickory Creek diversion, EPA is proposing to revise NEPA condition No. 12 of the Draft NPDES permit. The revised condition will require monitoring of both Hickory Creek and Troublesome Creek.

Response W-22

Farmland's comment that open mine pits will occur on both sides of the preserved area of Hickory Creek for a period of only a few months is accurate. This short-term loss of base flow to lower Hickory Creek does not warrant revision of the mining and reclamation plan since such an alteration could result in the loss of certain desirable aspects of the reclamation plan. However, recognizing the importance of maintaining the integrity of the preserved area of Hickory Creek, EPA is proposing to revise NEPA condition No. 13 of the Draft NPDES permit. The revised condition will require the monitoring of Surficial Aquifer levels within the preserved portion of Hickory Creek, impose a maximum 3-foot limit on the lowering of the Surficial Aquifer levels within the preserved area, and require mitigative measures such as rim ditching adjacent to the preserved area to prevent exceeding this limit.

Response W-23

EPA has no objection to revising NEPA condition No. 14 to indicate that the required monitoring will continue for the life of the mine or until such time that EPA and Farmland agree that the compiled date indicate no adverse effect on the Surficial Aquifer.

Response W-24

Categorization of wetlands is done in accordance with the recommendations of the Central Florida Phosphate Industry Areawide EIS. EPA's use of wetlands categorization has been the subject of previous discussions between the Corps of Engineers and EPA, and there continues to be a difference of opinion between our two agencies regarding its appropriateness and utility. EPA remains of the opinion that categorizing wetlands as Category 1 (preserve), Category 2 (mine and restore) or Category 3 (mine and no restoration) is of value in developing and evaluating alternative mining/reclamation plans, and EPA intends to continue application of the principle.

Response W-25

In the spring of 1980, the State of Florida established a phosphate-related Task Force to identify problems resulting from construction of homes on phosphate mined and reclaimed lands and to recommend appropriate solutions. One of the problems identified was the potential for high levels of radon and radon progeny accumulating in such homes. As a result of its investigations, which are still underway, the Task Force is expected to produce recommended State of Florida guidelines for radon exposure levels in homes built on reclaimed lands.

Meanwhile, in December of 1980, EPA initiated a study entitled, "Program for Control of Indoor Radon Levels - Common Building Practices and Soil Gas Entry Routes in Central Florida". This study, which is scheduled to take place over a 12- to 15-month period, is aimed at determining appropriate remedial measures for homes already constructed on reclaimed lands. The study will also address recommended building practices for the construction of new homes on reclaimed lands.

The results of EPA's study will be made available to the State of Florida, and it is expected that the Task Force will use the information in its development of state building codes for construction of homes on reclaimed lands. It is also fully anticipated that Florida's guidelines for radon exposure levels and building codes will be completed and adopted well in advance of the time that the Farmland site would be considered for residential development. In light of these facts, EPA does not consider it necessary or appropriate to condition the Farmland Draft NPDES permit to require the recording of deed restrictions for the mine property.

Response W-26

Well injection via connector wells would not be performed by Farmland nor is it recommended by EPA in this instance because of the potential for groundwater quality degradation.

Response W-27

Discussions with Hardee County officials indicate that local zoning, building, and sanitary codes should prevent poor construction and incompatable development from occurring. Codes which new construction would be subject to include the Southern Building Code, Southern Plumbing Code, Southern Mechanical Code, National Electric Code, and Florida Model Energy Efficiency Code. Development within the county is also being guided by the 1980 Hardee County Comprehensive Plan which includes both a Housing Element and a Sanitary Sewer, Solid Waste, Potable Water, and Drainage Element.

Response W-28

Discussions with Hardee County Health Department officials indicate that there are no known vector-borne disease patterns in the area and no vector management plans required for a project such as the proposed Farmland mine.

Discussions with Polk County officials regarding the impact of past mining activities on vector populations (specifically, mosquitos) indicate that the creation of wetland areas during reclamation of mined areas has increased mosquito populations in some localities to levels associated with salt marsh areas (bite counts of 200/minute). A vector-borne disease, St. Louis Encephalitides, also recurs at about a 2-year cycle in Polk County. However, occurrence of this disease does not appear to be centered around phosphate operations. The county maintains flocks of chickens which are tested periodically for the presence of this mosquito-borne virus.

Response W-29

One of the "NEPA Requirements" of the proposed NPDES permit for the project identified in the DEIS was that Farmland monitor the water quality of the Surficial Aquifer at a location identified by EPA (see NEPA Requirement No. 14). This location was selected because of its proximity to a sand-clay mix landfill. Farmland has agreed to monitor the Surficial Aquifer for the parameters requested by EPA for the life of the mine or until such time that the EPA and Farmland agree that the compiled data indicate no adverse impact on the Surficial Aquifer (see Farmland's written comment W-23).

As a result of comments received on the DEIS, the Surficial Aquifer monitoring requirements are now proposed to include both water quality and water level data acquisition. The water level station location requested by EPA is in the preserved portion of Hickory Creek adjacent to an area which is to be mined and reclaimed with sand-clay mix material in year 13 of operation.

Response W-30

The maximum steady-state drawdown of 31 feet predicted by the Trescott model would occur at the proposed well head which would be well within the limits of the Farmland site. The reference to the potential for violation of Southwest Florida Water Management District (SWFWMD) regulations relates to the lowering of the potentiometric surface at the well head below sea level. The elevation of the Farmland site in the vicinity of the proposed well field is about 75 feet above MSL. Water levels in the Floridan Aquifer were measured in 1977-78 and found to vary between 53 and 28 feet above MSL. If the maximum steady-state drawdown (31 feet) occurred during the period when the Floridan was at its lowest level (28 feet above MSL), the Floridan Aquifer's potentiometric surface could fall below sea level. The drawdown would occur directly in the pumped well with the core of influence rising above MSL at a horizontal distance of about 4 feet from the center of the well. In this event, in order to meet SWFWMD permit requirements pumping would have to be reduced for a period of time to allow the potentiometric surface to rise to sea level.

A separate requirement of the SWFWMD permit is that drawdown of the potentiometric surface not exceed a 5-foot limit at the site boundaries. Modelling of the projected drawdown indicates that the drawdown on adjacent properties will be less than 4 feet (Figure 3-8 of the DEIS).

Response W-31

See Response W-5.

Response W-32

The forested wetlands on the Farmland mine site are comprised primarily of mixed hardwood swamps/floodplain areas and bayheads (including ponds and sloughs). Mixed hardwood swamps and floodplain forests comprise the majority (66 percent or 800 acres) of the forested wetlands on the mine site. In these areas, cabbage palm, diamondleaf oak, and sweet gum dominate an essentially floodplain forest. Mixed hardwood swamps generally differ from the mesic hardwood forest in the decreased occurrence of live oak and the increased occurrence of wetland species such as water hickory, water locust, bald cypress, and American elm. In general, the dominant species are those with tolerance to a wide range of moisture conditions. Within the Oak Creek Islands area, hardwood swamp vegetation consists primarily of two variants. Along a portion of the Oak Creek channel, cabbage palm forms almost a pure stand. Throughout the northern portion of this area, in the vicinity of the poorly defined drainage pathways, sprouted or coppaced Carolina ash trees form dense stands in the depressions.

Bayheads (hydric hammocks), which range from 1 to 45 acres in size on the mine site, are dominated by either a swamp bay/sweet gum association or a sweet bay/red maple association. Bayheads account for 34 percent (405 acres) of the freshwater type on the mine site. Although these areas generally have a low species diversity, the higher quality stands contain many uncommon groundcover and epiphytic species, particularly ferns. The better stands have high timber biomass and relatively old trees.

Mining will result in the loss of 7 percent (62 acres) of the mixed hardwood swamps/floodplain areas and 64 percent (258 acres) of the bayheads on the site. The extent of each type remaining at significant milestones, expressed as acres and percentage of original acreage, will be as follows:

Time	Mixed Hardwood Swamps/ Floodplain Forests (acres)	Bayheads (acres)
Present	800 (100%)	405 (100%)
Pre-mining	800 (100%)	386 (95%)
Mining (1-4 yr)	795 (99%)	348 (86%)
Mining (5-8 yr)	783 (98%)	250 (62%)
Mining (9-12 yr)	771 (96%)	219 (54%)
Mining (13-16 yr)	745 (93%)	177 (46%)
Mining (17-20 yr)	738 (93%)	147 (36%)
Post-Mining	738 (93%)	147 (36%)

Overall, mining will result in a 26 percent reduction in the extent of the existing forested wetland acreage on the site. Farmland's reclamation plan calls for the planting of 59 acres of the reclaimed mine site (primarily along reclaimed lake margins) with hydric species. However, restoration of forested wetlands such as those which will be lost will require many years.

Response W-33

The 2530 acres to be preserved by Farmland are comprised of several cover types, the most extensive being freshwater swamp (i.e., forested wetlands). The acreage of each type to be preserved by Farmland will be as follows:

Freshwater Swamp	- 885 acres
Improved Pasture	- 456 acres
Pine Flatwoods/Palmetto Range	- 354 acres
Mixed Upland Forest	- 276 acres
Hardwood Upland Forest	- 187 acres
Citrus	- 160 acres
Freshwater Marsh	- 107 acres
Other Agricultural	- 58 acres
Coniferous Upland Forest	- 47 acres

Combined into natural and agricultural types, these account for 1856 and 674 acres, respectively. Figures 2-2 and 2-3 in the DEIS show the location of unmineable areas on the Farmland site and the existing land use within preserved areas. As indicated in Figure 2-2, unmineable areas include areas considered environmentally sensitive as well as areas considered unmineable because of mine planning constraints (e.g., low quality matrix areas). A comparison of Figures 2-2 and 2-3 shows that about half of the unmineable mine planning areas are to be preserved. These areas contain most (about 65 percent) of the preserved agricultural acreage and a smaller amount (13 percent) of the preserved natural cover type acreage.

The selection of areas to be mined (as well as the mine schedule) involved a detailed analysis of the distribution and quality of the matrix over the site as well as environmental sensitivities. Although environmentally sensitive areas preserved contained some phosphate ore, it was found that the deposits were not so extensive as to mandate recovery. By sacrificing some adjacent or interspersed deposits, the following environmentally valuable areas were excluded from disturbance:

- the hydric and mesic forests associated with the floodplain of the Peace River (Sections 7 and 18, T35S, R25E)
- the forested wetlands associated with the floodplain of Troublesome Creek (Section 1, T35S, R24E; and Section 36, T34S, R24E)
- the heterogeneous mixture of upland forests, forested wetlands, and freshwater marshes known as Oak Creek Islands (Sections 3, 10, 11, and 14, T35S, R24E)
- the forested wetlands area along a northern tributary to Oak Creek (Section 34, T34S, R24E)
- the forested segments along the lower reaches of Hickory Creek (Section 2 and 11, T35S, R24E).

The largest of these areas is the 822-acre area known as Oak Creek Islands. Oak Creek Islands consists of a complex, highly interspersed group of upland and wetland communities, generally grading from pine flatwoods on the east through successional mesic hardwood stages to mixed hardwood swamp and cabbage palm hammock in the northwest. Reduction in flow into the dissected drainage pattern of the north end of the islands appears to have resulted in a successional trend of increased upland species. Sweet gum and oaks have invaded the flatwoods whereas upland shrubs and annual species have invaded the marshes. Marshes and swamps appear to be limited to depressed areas which may be related to underlying geologic conditions. The swamps in these areas are composed primarily of coppaced or sprouted forms of Carolina willow and buttonbush.

Another large ecological unit to be preserved is the 598-acre forested area along Troublesome Creek and the Peace River. This forest has high value because of its high species diversity, high biomass, unique habitat value, and the presence of large, old-age trees sheltering a mature and complex community. The floodplain forest also provides the Peace River with a substantial area for sediment release, energy dissipation, and additional storage volume.

The wetlands proposed for mining (i.e., those outside preserved area boundaries) are those which EPA considers to be Category 2 and 3 Wetlands (see page 3-114 of the DEIS). Regarding Category 2 Wetlands, the acreage to be mined must be restored as part of Farmland's reclamation plan. Category 3 Wetlands need not be restored. However, Farmland has proposed to enlarge its wetland restoration program such that the total wetland acreage to be mined will be restored (605 acres).

Response W-34

The Category 2 "Acres Lost" acreage tabulation on pages 3-114 and 6-8 of the DEIS refers to the Category 2 "Wetlands Disturbed" shown in Figure 3-12. The Category 2 Wetlands disturbed are primarily those wetlands which occur within the 25-year floodplain above the point of 5 cfs and isolated wetlands which are larger than 5 acres in size. Both freshwater marshes and swamps are included in this category. The largest area, a 77-acre Bayhead/Inland Pond system, is located in the southwestern portion of the mine site. Additional large areas within this category are a 40-acre cattail-bulrush-maidencane marsh in the north central portion of the site and two 30-acre sawgrass/bayhead systems in the northwest portion of the site.

Response W-35

Farmland's plan for sand-clay mixing does not entail using the sand-clay mix technique attempted by Brewster Phosphates, Inc. As stated in Section 2.4.1 of the DEIS, during the early years of mining Farmland plans to experiment with the most up-to-date techniques available and select the technique that is best suited to the conditions at their mine. The technique to be employed could be any one or a combination of the several techniques currently being refined (e.g., sand-clay dredge mix, Enviro-clear, Gardinier, or Rotory frommel-PEO). An important source of information regarding the selection of a technique will be the presentations to be made on this subject during the seminars planned at the Bureau of Mines Tuscaloosa Research Center in the summer of 1982.

Response W-36

The planned post-reclamation topography of the site is provided in Figure 2-14 of the DEIS. Farmland's proposed reclamation plan as presented in the DEIS (Page 3-125) provides for the creation of 339 acres of freshwater marsh and 59 acres of freshwater swamp. Current plans for the restoration of the 59 acres of freshwater swamp include plantings of native hydric species such as black gum, sweet gum, red maple, and bald cypress. Of the 339 acres of freshwater marsh, 158 acres are located in the Hickory Creek and Oak Creek floodplains and in the reclaimed clear water pool and land and lakes area. Detailed descriptions of the reclamation plans for these areas are given in Sections 2.7.1.1.1 and 2.7.1.1.4 of the DEIS. The details are somewhat limited by the fact that specific measures to be utilized in Farmland's wetlands revegetation programs will depend upon and take advantage of the current research being conducted in the phosphate industry as well as the onsite wetland revegetation experimentation planned for the first available sand-clay mix landfill. Farmland plans to utilize a 24-acre portion of Sand/Clay Area I (S/C 1) for this experimentation. Current Farmland plans include the following experimental plots:

- areas in which volunteer vegetation is allowed to develop;
- areas in which organic substrates removed from disturbed marshes onsite are introduced to provide a source for the introduction of natural marsh vegetation;
- areas in which plantings of typical marsh-type species such as maidencane, pickerelweed, and arrowhead are made; and
- areas in which plantings of hydric tree species--such as bald cypress, blackgum, sweet gum, and red maple are made (trees of 2 to 4 inch diameter transplanted from onsite disturbed areas would be included along with bareroot and potted seedlings to help determine the optimum transplant size for forested wetland restoration).

The knowledge gained in these experimental plantings will be used to guide revegetation plans for the remaining freshwater marsh to be located in depressions within the sand-clay mix landfills. The 181 acres of restored depression wetlands described in the DEIS have been expanded as a result of EPA and State requirements to total 388 acres (see Farmland's Comment W-20).

Successful restoration of the total wetland acreages indicated is imposed as a permit condition of the Draft NPDES permit. Should revegetation of the 388 acres of depression wetlands not occur by natural colonization of indigenous species, other measures such as plantings and seedings would have to be implemented in order to satisfy the permit condition. EPA further proposes a requirement for Farmland to monitor the results of their wetlands restoration effort. NEPA permit condition No. 15 has thus been developed to require a wetlands restoration monitoring program (previous No. 15 is now No. 17).

Response W-37

In discussions with Dr. Clayton Ray (Curator of Vertebrate Paleontology at the National Museum of Natural History) and Dr. S. David Webb (Curator of Vertebrate Paleontology at the Florida State Museum) concerning the mammoth skeleton reported from Hickory Creek, it was learned that these remains were actually found in Hickey Branch, a tributary of Payne Creek 15 miles north of the Farmland site. A number of such Pleistocene remains have been found along the eroded channels of creeks in the area (e.g., Horse Creek, Prairie Creek), and there is great potential that fossil remains dating to the Pleistocene, Pliocene, or even Miocene will be uncovered during the mining of the Farmland site. From a strictly paleontological point of view, such mining can be either very beneficial or very harmful. Inevitably some fossils will be damaged, lost, or destroyed in the course of mining. If no provision is made for salvage of fossils for science, then paleontologically it would be better if no mining were done. If, however, modest opportunity is provided for salvage of specimens and information, then the mining can be regarded as paleontologically beneficial. The minimal requirement is the provision of regular access to dragline spoil windrows (most important), ore residue, ore piles, and reject piles, on a strictly not-to-interfere basis. This mitigation measure is proposed by EPA and incorporated into the Draft NPDES permit as NEPA requirement No. 16.

Response W-38

No response required.

Response W-39

Mr. Charles Novak, Chief, Network Maintenance Branch was contacted regarding the locations of geodetic control survey monuments in the Farmland site area. Mr. Novak's review of such locations found no markers in the site area.

3.3 HEARING TRANSCRIPT

PUBLIC HEARING

U. S. ENVIRONMENTAL PROTECTION AGENCY

REGION IV

IN CONJUNCTION WITH

FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION

JULY 14, 1981

FARMLAND INDUSTRIES

PROPOSED PHOSPHATE MINE AND BENEFICIATION PLANT

HARDEE COUNTY, FLORIDA

7/14/81

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PUBLIC HEARING

A public hearing on the Draft Environmental Impact Statement, the proposed issuance of a National Pollutant Discharge Elimination System Permit, and State Certification of the NPDES permit for the Farmland Industries, Proposed Phosphate Mine and Beneficiation Plant, Hardee County, Florida, was held on July 14, 1981, at 7:00 p.m. in the Hardee County Agricultural and Civic Center, at Altman Road and Stenstrom Road, in Wauchula, Florida.

Thereupon, the following proceedings were had and taken:

MR. HAGAN: Good evening, ladies and gentlemen. My name is John Hagan. I am the chief of the Environmental Impact Statement Branch of Region IV, Environmental Protection Agency in Atlanta, Georgia.

With me this evening on the hearing panel is Mr. Mickey Bryant, representing the Florida Department of Environmental Regulation, Mr. Roosevelt Childress, an environmental scientist in the permitting process section, Enforcement Division of EPA in Atlanta, and Ms. Jean Tolman who has been the Environmental Impact Statement Project Officer for the preparation of this EIS.

This evening's hearing will address possible action by EPA with respect to Farmland Industries' phosphate mine and beneficiation plant proposed for construction in or near the town of Ona, Hardee County, Florida.

The proposed project was determined by the Regional Administrator of EPA, Region IV to constitute a new source under Section 306 of the Clean Water Act. That's 33 U.S. Code 1251. This requires the issuance of a national pollutant discharge elimination system permit, otherwise known as an NPDES permit. Issuance of an NPDES permit to a new source facility is by law a major federal action and is therefore subject to the provisions of the National Environmental Policy Act of 1969.

The National Environmental Policy Act of 1969, as amended, requires federal agencies to prepare an environmental impact statement on major federal actions which significantly effect the quality of the human environment. The Regional Administrator of EPA Region IV determined that the proposed Farmland facility would have a significant impact on the quality of the human environment.

To meet the requirements of NEPA, a draft environmental impact statement has been prepared and EPA has distributed it government agencies and to the public. Notice of its availability was published in the Federal Register, Volume 46, No. 108, dated June 5th, 1981.

In addition to EPA's action, the state of Florida has been requested to certify the proposed NPDES permit in accordance with the provisions of Section 401 of the Clean

Act.

This hearing is for the purpose of receiving comment on the draft environmental impact statement, the proposed issuance of the NPDES permit, and the state certification of that proposed permit.

The Federal Water Pollution Control Act, commonly referred to as the Clean Water Act, has as its explicit goal the elimination of discharge of pullutants by 1985. To achieve this goal, the act created the National Pollutant Discharge Elimination System, a national permit program to control the discharge of pollutants into the nation's waters. Under this permit program, anyone who proposes to discharge wastes into waters of the United States must receive a permit setting limits and conditions on the discharge of pollutants. The act requires strict limits for new sources such as the Farmland Industries' facility. The NPDES permit is the basic regulatory tool for water pollution abatement under federal law. This discharge must be in compliance with it's permit effluents upon initiation of the discharge. And any violation of the terms or limits of the permit will subject the discharger to civil and/or criminal penalties.

In accordance with this NPDES permit system and Subsection 306(c) of the Clean Water Act, Farmland Industries has applied to the Environmental Protection Agency for a permit to discharge pollutants from its plant to be constructed and operated near the town of Ona in Hardee County, Florida. The permit application describes two proposed discharge points from the facility. The primary discharge, proposed outfall Serial No. 001, would discharge from the clear water pond to Hickory Creek at a location given as Latitude 27 degrees 27' 54" and Longitude 81 degrees 53' 6". The proposed outfall Serial No. 002 would discharge from the area described as the reclamation area into Oak Creek at about Latitude 27 degrees 27' 44" and Longitude 81 degrees 54' 43". Both receiving streams are tributaries to the Peace River and are classified by the state of Florida as Class III. That is recreation and propagation and management of fish.

The draft NPDES permit proposed for Farmland Industries was prepared by the staff of Region IV, EPA, using applicable water quality standards and new source performance standards for the mining--mineral and mining point source category, phosphate rock subcategory, contained at Title 40 Part 436 of the Code of Federal Regulations, and the best professional judgment of the staff concerning the application of these guidelines to the site-specific conditions. A fact sheet has been prepared which details the rationale for the permit limitations and conditions.

We have made available for distribution here this evening copies of the public notice, the fact sheet, and other permit rationale information, and the draft environmental impact statement. Each of these documents, as well as other relevant documentation and all comments received tonight or submitted in writing by the close of business on July the 28th, 1981, will become a part of the administrative record for this permit. The information in the record will be used in evaluating the draft permit and in either preparing a final draft NPDES permit in the final EIS, or denying the applicant a permit for the proposed discharge. In addition, you should be aware that all public comments on the Farmland Industries' facility and the draft environmental impact statement, whether received here tonight and transcribed for the record or whether submitted in writing directly to the EPA, will be summarized and addressed in the final environmental impact statement.

This hearing is to be an EPA public information hearing conducted pursuant to 40 Code of Federal Regulations, Subsection 124.42(b).

Notice of the public hearing was published in the Tampa Tribune and in the Wauchula Herald Advocate on May the 28th, 1981. Additionally, copies of the public notice and fact sheet and the EIS were mailed to individuals and organizations on the EPA mailing list and to all appropriate governmental agencies.

At this time, I would like to ask Mr. Mickey Bryant of the State Department of Environmental Regulation to make any comments he has concerning the State 401 certification. Mr. Bryant.

MR. BRYANT: Thank you. I'd like to, on behalf of the state of Florida and Secretary Shinkle of the Department of Environmental Regulation, also welcome everyone here to tonight's hearing. My main reason for being here is to listen and receive public input and comments relative to state certification of this proposed phosphate mine. At this point in time the department is also currently reviewing the environmental impact statement and has not formulated a definite position. And we certainly encourage public input.

I might mention that in addition to the requirement under Section 401 of the Clean Water Act that a state issues certification or act upon certification. The state of Florida also will be involved in issuing or at least considering a number of permits for this proposed facility. These permits will consider the construction and operation and discharges from the mine as well as permits for the construction of dams around holding structures for receiving wastes, clay wastes and sand wastes from the mine.

The public is also--has the opportunity to become involved in the state permitting process. And it is encouraged to send any comments that they might have relative to state permits to our sub-district office in Tampa, Florida.

I don't really have any other comments at this time. And I am here to listen to your input.

MR. HAGAN: Thank you, Mickey.

Now, I would like to ask Ms. Jean Tolman, the EIS project officer, to comment on the NEPA process and the EIS process and on the development of this particular EIS process.

MS. TOLMAN: Thank you, Mr. Hagan, and good evening, ladies and gentlemen.

As Mr. Hagan indicated in his opening statement, EPA has determined that the proposed mining operating constitutes a new source and, further, that the issuance by EPA of a new source NPDES permit is subject to the provisions of NEPA requiring preparation of an environmental impact statement, abbreviated EIS.

The purpose of the EIS is to provide government agencies and the public with information to assure that a thorough review of the environmental impacts of the proposed federal action is included in the decision-making process.

The Farmland draft EIS was prepared using the so-called third-party EIS process. Under this arrangement, Farmland retained a consultant to prepare the EIS under EPA's direction. Woodward-Clyde Consultants, Incorporated, was selected by EPA as the third-party consultant to prepare the

Farmland EIS. However, EPA retains ultimate responsibility for the EIS.

To comply with the goals of NEPA, the EIS must do the following: One, provide a thorough description of the environmental background and setting; two, evaluate all reasonable alternatives which meet project objectives, as well as the no action alternative; assess the environmental impacts of the alternatives; and No. 4, identify all potentially adverse impacts and evaluate means to mitigate these impacts.

At this time, I would like to call on Ray Hinkle of Woodward-Clyde Consultants here tonight to describe how the Farmland EIS preparation was conducted by the third-party consultant to satisfy the requirements of NEPA. At the conclusion of Mr. Hinkle's remarks, I would like to conclude a discussion of the EIS development by comparing EPA's recommendations and proposed agency action on the Farmland project to the recommendations contained in the Central Florida Phosphate Industry Areawide EIS. Ray.

MR. HINKLE: Thank you, Jean. What I would like to do is just briefly describe in a little bit more detail perhaps the way in which we were involved with EPA in the preparation of the document and then talk a bit in addition about content of the document itself. As some of you probably recall, this all was started nearly two years ago in the scoping meeting held in Mulberry, August 1st, 1979. Of course, several things have happened along the way to bring us to this date. And I'll just briefly mention some of those to kind of set our time--our spot in time today. Following that scoping meeting, a final plan of study was prepared for work on EIS and work was initiated and proceeded through the end of 1980 when a modification project was made by Farmland and at the direction of EPA the scope of EIS was modified to reflect a--the--rather the exclusion of the chemical plant portion which had previously been proposed as part of the action.

At this point the alternatives considering--concerning the chemical plant were omitted as well as any discussions of impacts of that part of that project and the preliminary draft was prepared for EPA review. That occurred in the period between February and April 1981. And the draft which was submitted for the reproduction and distribution was completed in May of 1981.

As Jean indicated, the basic components of the draft EIS are a description of the alternatives which meet the project goals. These alternatives include Farmland's proposed action. Also included is a description of the existing environment of that of the Farmland site and a description of the impacts of the various alternatives on that existing environment. The alternatives evaluation is what is considered to be the part of the EIS. It is really where the least damaging or most environmentally suitable means of achieving the project goals come forth and can be then evaluated with other alternatives, evaluating in addition the technical and economic aspects of each. The proposed action, that being the mine only, is the same action as was discussed by Farmland during their DRI hearings which again many of you may have heard or may have had the opportunity to attend. So that, in effect, we're talking about the same project. And the proposed action with the addition of some mitigating measures is also as Jean will discuss the EPA's preferred alternative. So that we're all, really I think, talking about the proposed action as kind of the alternative that is to get the--in the limelight, so to say.

Farmland's objective is to produce two million tons per year of wet phosphoric rock over a 25 year life of the mine. This will require the mining of some 4,951 acres of the 7,800 acre site with an additional 329 acres to be occupied by other facilities such as the beneficiation plant. During the life of the mine, all of the rock mined from the tract will be shipped to existing fertilizer plants for conversion to finished fertilizer with approximately 50 percent of the tonnage going to Farmland's existing phosphate fertilizer manufacturing facility at Green Bay. The rock currently being processed at that existing facility has historically been purchased from other producers of raw material in Florida.

The initial phases of the proposed activity would include land clearing and open burning in advance of the mine. The cleared acreage in front of the mining operation being about 20 acres. The mine operation will involve a single large dragline supplemented beginning in year 10 by a second smaller dragline. The mine matrix will be slurried and transferred by a pipe line to the beneficiation plant for washing, to separate several--pebble product, clay, and fines and for floatation to recover additional product. The wet rock will be stored temporarily at the plant.

Farmland plans to construct a railroad spur to the plant linking it with the existing Seaboard Coastline Railroad and rail ship the product from the plant to the receiving phosphate fertilizer plants. There will be impacts that will result as, or occur as a result of these activities. And what I would like to do is just briefly go through the various disciplines which are discussed within the document and perhaps highlight some of the impacts that would result.

Air quality meteorology and noise impacts will result from both mining and processing activities. These will however be minor increases, notably in fugitive dust emissions and emissions from internal combustion engines. There will also be minor emissions of all reagents used in the processing. Noise levels will be increased in the vicinity of operating equipment, but should dissipate within relatively short distances. Geology and soils impacts will result from the disruption of surface soils and overburden over 4,951 acres of the site and a--and the mine will result in a completion of some four million tons of phosphate rock reserves over the life of the mine. Waste disposal and reclamation will also result in the formation of unnatural surface soils on the site. The acreage being as follows: sand-clay mix reclamation areas, 3,915 acres; clay disposal areas, 583 acres; sand disposal areas 104 acres; other types of land disturbance would be--and reclamation would be land and lakes, 567 acres as well as 111 acres of land left following construction. That would be buildings and such that are removed, but the land disturbed. Radiation levels will be increased at the surface within the surface soils. The--this will result as a result of the natural--it will result in the natural distribution being altered resulting in higher levels than the generally less than one (picocurie) hy-Picocury per gram radium 226 currently found on the site. Examples are that the average radium 226 level in sand-clay mixer is--should be on the order of three to four (picocuries per gram). hydrograms Picocury. The levels in clay areas should be on the order of six (picocuries per gram). hydrograms Picocury. Areas reclaimed with sand will have the lowest of the three types of unnatural soils. These having radiation, radium 226 levels of about two (picocuries per gram) hydrograms Picocury. Groundwater will be withdrawn for use in processing. The average rate being 8.83 mgd. This will cause a lowering of the potentiometric surface in the immediate site area. The Surficial Aquifer will also be lowered in the vicinity of active mine cuts due to the dewatering simply through the surface or the Surficial Aquifer waters draining into the pits. Surface waters, there will be a disruption of surface water flows from the mine site. Following reclamation, however, these alterations will be such that the end or the net difference is only -.5 CFS so that surface flows will be returned following reclamation. There will be discharged into surface waters from two discharge points which will described to you. These are planned so that they will occur at times when flows are above the normal flow, I'll say, and that the streams should absorb the pollutants, I'll say, that are contained within the discharge so that they do not exceed any standards.

The destruction of aquatic habitats on the mine site will result in losses of aquatic organisms. However, reclamation of the site will be such that there will be many acres of acquatic habitat provided that are now lacking. Currently, the surface waters on the site support primarily fish species such as mosquitofish and killifish. The creation of some 500 acres of lakes and meandering streams. will provide additional habitat for species such as large mouth bass and bluegill and red-eared sunfish. The mining will also result in destruction of terrestrial habitat on the site. The totals being as follows: pasture 1,960 acres; citrus 1,757 acres; early successional areas which are really roadside type areas where the plants are just becoming established 95 acres; pine flatwoods, palmetto range 583 acres; upland forest 280 acres; swamp 320 acres; marsh 285 acres. The species affected by the disturbance include a species which is considered threatened by the US Fish and Wildlife Service, that being the Eastern Indigo Snake. The impacts on the Eastern Indigo Snake population, however, are not considered to be significant. And therefore the proposed action does not represent a threat to the continued existence of the species. There are, however, mitigation measures which are proposed to reduce the impacts on this species.

The socio-economic impacts which the project will result in include the generation of jobs with comparatively high incomes for Hardee County, the addition of ad valorem and sales tax revenue for Hardee County, the creation of severance tax revenue for the state, land reclamation trust fund, and Florida Institute of Phosphate Research. There will be some additional influx of population to Hardee County which will have an increased or will create an increased demand for housing, transportation, fire protection, police, and medical services. But these should all be within the capabilities of the county to handle. The monetary returns to the county are sufficient to cover those increased costs.

I think that basically provides an overview of the impacts of the proposed action. There are other alternatives, as I say, that were considered which have different impacts in some cases, particularly on surface waters and in some cases on terrestrial habitats. These are discussed in the EIS in more detail. And I think that would be a better source rather than taking more time here.

MS. TOLMAN: Thank you, Ray.

The Central Florida Phosphate Industry Areawide EIS published by EPA in 1978 contains several recommendations for future phosphate mining operations. These guidelines were kept closely in mind in evaluating Farmland's proposed project and in developing and evaluating alternatives and mitigating measures.

EPA's recommendations and proposed agency action are embodied in the draft NPDES permit contained in the DEIS, specifically in the 15 NEPA generated permit conditions found in the last six pages of the draft permit. Those of you who have the fact sheet in hand might like to turn to Attachment C, the permit. These permit conditions follow the order of the Areawide EIS recommendations and I would like at this time to quickly go over the recommendations and, where applicable, the corresponding permit condition. First, the Areawide EIS recommended the elimination of the rock-drying process at beneficiation plants and the transport of wet rock to chemical plants. The proposed Farmland project does not include a rock dryer and calls for all rock to be transported from the site in a wet condition. Secondly, the Areawide EIS called for any new source mine to meet state of Florida and local effluent limitations for any discharge. The draft NPDES permit prescribes limits which will meet those effluent limitations. They will be addressed in some detail by Mr. Childress on my left. Third, the elimination of conventional above ground slime disposal areas was a recommendation by the Areawide EIS. In order to meet this recommendation, the Areawide EIS encourages the use of a mixture of sand tailings and waste clays in reclamation while at the same time it recognized the need for an initial above ground storage area. Farmland's proposal conforms to this recommendation, and NEPA generated Permit Condition No. 1 reads: Farmland shall exclude the utilization of any conventional above ground slime disposal areas with the exception of clay setting areas I and II described in the EIS. Farmland's waste disposal and reclamation plan shall employ a sand-clay mix process as described in the EIS. Only settling area II shall remain active for the life of the mine. Furthermore, Permit Condition No. 2, proposed by EPA is a--as a further mitigating measure, reads: Farmland shall perform the dragline mining operation in a fashion that increases the casting distance of the overburden, causing the overburden to be piled higher and thereby increasing by approximately 10 percent the below ground volume available for waste disposal and lowering the above ground profile of settling area II by approximately four feet. I might add that this was the mitigation measure that was suggested by the mining engineer as part of the third party consultant team. The Areawide EIS recommended that any new source mining operation meet Southwest Florida Water Management District consumptive use permit requirements. Farmland is obligated to the terms and conditions of the SWFWMD permit. Should Farmland fail to comply with the permit, the permit will automatically become null and void. In addition, EPA has made this obligation a part of the NPDES permit by Condition No. 3 which reads: Farmland shall meet the requirements of its Southwest Florida Water Management District Consumptive Use permit. The Areawide EIS recommended that new source minutes provide storage allowing for recirculation of water recovered from slimes.

The water recirculation system for Farmland's proposed mining operation provides for containment and for approximately 90 percent water recirculation so that a discharge should be required only during periods of heavy rainfall. Commitment to this proposed system is required by Permit Condition No. 4, which I will not read out loud. I believe you have it before you. Another AEIS recommendation was for the use of connector wells. Farmland does not propose to use connector wells for recharging the Floridan Aquifer from the Surficial Aquifer, not does EPA recommend it in this case. It is not considered desirable since high gross alpha radiation levels were found in the Surficial Aquifer at the site. The Areawide EIS recommended that new source mines develop mining and reclamation plans that reduce the amount of radiation at the surface. Permit Condition No. 5 states that: During the dragline mining activity, Farmland shall employ the technique of leach zone management by toe spoiling, that is, overburden from near the interface with the matrix (the leach zone, where radioactivity in the overburden is concentrated) shall be placed at the toe of the spoil pile and covered with overburden from upper strata. The Areawide EIS recommends that new source mines meet county and state reclamation requirements and that they conduct an inventory of types of wildlife in the mine site. On December 4th, 1980, Hardee County issued Farmland a development order for their project.

A master plan has also been filed pursuant to the county's mining and earthmoving ordinance. The permit condition applicable--pardon me--the permit condition applicable to this recommendation is No. 6, which states: Farmland shall meet county and state reclamation requirements. Also, an inventory of wildlife habitats on the site was made and is included in the DEIS. The Areawide EIS recommends that the mining and reclamation plan take into account the protection and restoration of habitat so selected species of wildlife will be protected. Farmland's mining plan calls for areas to be cleared only as mining approaches. Included in the reclamation plan is the restoration of some mined areas as wildlife habitat. Lastly, Farmland proposes to preserve approximately 2,500 acres on the site. This commitment is include in Permit Condition No. 7, which states: Farmland shall preserve from mining, or any other disturbance, the areas proposed for preservation in Farmland's proposed action in the EIS. These areas are depicted in the attached map, Figure 1. These areas--pardon me--specifically, the total preserved acreage of 2,530 acres shall include a minimum of 510 acres of forested uplands, 885 acres of freshwater swamp, 107 acres of freshwater marsh, and 354 acres of pine flatwoods/palmetto range, all in the locations depicted in Figure 1. Additionally, EPA proposes as mitigating measures Permit Conditions No. 8 and 9. These also apply to that recommendation in the Areawide EIS. No. 8 reads: Farmland shall increase the acreage reclaimed as forest habitat and provide corridors for wildlife movement between reclaimed and preserved areas by planting additional areas as depicted in Figure 2, attached, also in your permit fact sheet. No. 9 reads: Farmland shall incorporate into its reclamation plan a littoral zone at the downstream extent of the proposed reclaimed open lake in the Hickory Creek channel. This littoral zone shall be at least 500 feet wide and at a depth suitable for emergent vegetation, providing for the establishment of 7 to ten acres of marsh community. I might interject at this point that this is not the only instance of littoral zone provisions. This is in addition to the littoral zone vegetation, revegetation already been included in the proposed plan. This is a mitigating measure which adds to that already being done. Farmland's proposed project, as Mr. Hagan pointed out, will affect one species considered threatened by the US Fish and Wildlife Service. To mitigate effects on the Indigo snake, EPA proposes Permit Condition No. 10. Permit Condition No. 10 reads: Before beginning any land-disturbing activities, Farmland shall develop a program whereby Indigo snakes encountered in the work area are captured for relocation to other areas of suitable habitat in the site region. This program shall include informing Farmland workers of the importance of the

Indigo snake, familiaring them with its appearance and instructing them as to its preservation. In addition, the gopher tortoise population shall be protected to the extent possible in the site area. Farmland shall coordinate its recovery and relocation efforts with the Endangered Species Coordinator, and shall maintain a record of the program to be submitted to the US Fish and Wildlife Service. The Areawide EIS recommended the protection and restoration of wetlands under jurisdiction of the Corps of Engineers pursuant to Section 404 of the Clean Water Act. The Areawide EIS established three categories of wetlands. No specific boundaries or wetlands area have been officially identified by the Corps of Engineers. The following three categories of wetlands, however, were established by the EPA in the Areawide EIS: Category 1, wetlands to be protected, not mined or disturbed; Category 2, wetlands which may be mined but must be restored as wetlands capable of performing useful wetland functions; Category 3, wetlands which can be mined without restoration as wetlands. Wetlands on the Farmland site were categorized following EPA criteria. Wetland area on the property were classified as either Category 1, 2, or 3. Farmland's proposed mine plan will result in the loss and protection of the following acreages of each of the above wetland categories. Category 1, acres lost 0, acres protected 710, percent protected 100 percent. Category 2, acres lost

502, acres protected 264, percent protected 34. Category 3: acres lost 91, protected 18, percent protected 16. Farmland's reclamation plan would restore 398 acres of wetlands on the Farmland mined site. This amounts to 77 percent of the Category 2 wetlands on the site. I might reiterate, Category 2, wetlands according to EPA's criteria should be restored in their entire acreage. Therefore, EPA proposes Permit Condition No. 11. Permit Condition No. 11 reads: Farmland shall comply with the categorization of wetlands present on the mine site as set forth in the EIS and illustrated in Figure 3, attached. In summary, within Category 1 wetlands, Farmland shall not mine, shall limit activities to those essential to and unavoidable for the mining operation, and shall otherwise take all reasonable measures to preserve all Category 1 wetlands. Additionally, Farmland shall restore the total acreage of Category 2 wetlands disturbed by mining. Specifically, the acreage to be restored as freshwater marsh or swamp according to Farmland's proposed action in the EIS shall be increased by at least 116 acres (from 398 acres to a minimum of 514 acres). This shall be done by differential grading and settling of sand-clay mix areas in addition to that already proposed by Farmland in the EIS. In addition, Conditions 12 and 13 are mitigating measures proposed by EPA to further minimize impacts on wetlands. No. 12: During the mining of the unpreserved portion of Hickory Creek, the flow from this area shall be diverted around the active mine area into the lower preserved section of Hickory Creek rather than to Troublesome Creek. Thirteen: Mining in the vicinity of lower Hickory Creek shall be scheduled such that open mine pits exist adjacent to only one side of the preserved portion of the creek at a given time.

The final Areawide EIS recommendation applicable to Farmland is to attempt to preserve archaeological or historical sites through avoidance or mitigation. An archaeological and historical survey of the Farmland site was conducted. The State Historic Preservation Officer for Florida concluded that the archaeological and historical resources of the site did not merit any mitigative measures or preservation.

Permit Condition No. 14 has no direct relationship to a recommendation of the Areawide EIS, but reflects rather the new technology represented by the use of sand-clay mix. No. 14 reads: Farmland shall monitor the water quality of the Surficial Aquifer at the location identified on the attached map, Figure 3. The following parameters shall be monitored on a quarterly basis for the life of the mine: pH, specific conductance, sulfates, fluoride, and ammonia. A written report summarizing the data shall be submitted once a year to EPA. The purpose of this is we are dealing with a new technology and we're trying to establish what exactly does occur, what, if anything, does seep out and stand in this area of the Surficial Aquifer.

No. 15 is what might be described as a general condition. It commits Farmland to carry out the project as described in evaluating the EIS, so that everything that they propose to do including all mitigating measures in their proposed action shall be done.

No. 15 reads: Unless specified otherwise by a preceding condition in this permit, Farmland shall carry out its mining project in complete accordance with the applicant's proposed action described and evaluated in the Farmland EIS, including the employment of all mitigating measures presented as part of the proposed action. However, this shall not preclude the imposition of any additional or more stringent conditions which may be required by any local or state regulatory agency or governmental entity.

Thank you for your patience in going over these rather extensive permit conditions. What we're trying to do is supply information obtained through the EIS process in a very real fashion to a permit issued--proposed to be issued to Farmland.

MR. HAGAN: Thank you, Jean. Now, I would like to call on Mr. Roosevelt Childress of our Permits Program in Atlanta to discuss in a little different light the NPDES permit that is proposed to be issued. Mr. Childress.

MR. CHILDRESS: Thank you, John.

The draft National Pollutant Discharge Elimination System, NPDES, permit--I'll start again. The draft--draft National Pollutant Discharge Elination System--the draft NPDES permit for the Farmland Industries was developed by the Permit Processing Section of the Consolidated Permits Branch in EPA. It is our responsibility to insure that the requirements of the Clean Water Act are carried out.

Mr. Hagan has stated that the proposed project was determined by the Regional Administrator to be a new source under Section 306 of the Clean Water Act. For this reason, the environmental aspects of the project are subject to review procedures specified in the National Environmental Policy Act, abbreviated NEPA. The review process, as Jean Tolman just discussed, is directed by our EIS Branch. The NPDES permit issuance process is conducted in conjunction with this review process.

In this regard, effluent guidelines have been published to address the wastewater generated from this facility. However, in some cases, effluent guidelines requirements alone are not enough to insure that the integrity of the water quality within the receiving stream is protected. This brings me to my discussion of the terms and conditions of the proposed permit. You should have gotten a copy of it as you entered and registered at the registration desk in the rear of the room. It will be helpful if you refer to this draft permit as I briefly cover its contents.

The effluent limits on page 1 and 2 of part I are applicable to wastewater discharges dependent on heavy rainfall events, which will occur in non-continuous discharges. Discharge No. 1 will consist of overflow from waste settling areas to Hickory Creek and discharge 002 will originate from the reclamation area to Oak Creek. The company expects to discharge 182 days out of the year. The effluent guidelines for this industry, Phosphate Rock Subcategory of the Mineral Mining and Processing Category, only identifies total suspended solids and pH as parameters warranting permit conditions. As I said before, the effluent guideline requirements alone will not protect the water quality within Hickory and Oak Creeks. Both creeks are classified as Class III waters suitable for contact recreation and the management and propagation of fish and wildlife. Therefore, additional parameters included in the draft permit are biochemical oxygen demand - five day, Specific Conductance and combined Radium 226 and 228.

State of Florida requirements for Class III waters require that the instream measurement of specific conductance not be raised above a maximum level. The dilution requirements on page 3 of part I will ensure compliance with this standard. Conductivity is a measure of the ability of water to conduct an electric current. This measurement can be used to indicate the total amount of dissolved solids in the effluent. State standards also require that radium limits and more stringent pH upper limit of 8.5 to be placed in the permit. The effluent guideline requirement for pH is 6.0 to 9.0. So in writing the current conditions we had to use the more stringent standard of 8.5.

Also on page 3 of part I is a statement which will relieve the company from complying with the total suspended solids and pH conditions during a heavy rainfall even which might occur once in 10 years if the treatment facilities are designed and maintained to meet certain criteria.

Finally, the permit conditions I have just discussed constitute the principle part of the permit from an NPDES standpoint. However, as previously explained, a new source such as this facility is subject to additional environmental regulations under NEPA. And those conditions were just discussed by Jean Tolman.

Thank you. John.

MR. HAGAN: This concludes the Environmental Protection Agency and the state of Florida's presentation with regard to this permit. It is now time for the principal purpose of our meeting which is to receive the public comments. A goal of the Clean Water Act and National Environmental Policy Act is to be encouraged and provide for public participation and input into the decision-making process for actions legislated by these two acts, to encourage governmental responsiveness to the public, and to promote a general awareness of the actions proposed by federal agencies, we are now conducting this public meeting.

We asked you to register so that we may have a record of those in attendance, and also that we can send you the notices of our determination regarding this permit. If you have not already registered and wish to make an oral statement, tonight, we ask that you do register and indicate that you wish to make a statement on the registration card.

There are some other formalities here that I think I need not go through. The rules of our public hearing process are really quite simple. We ask you to come to the microphone, identify yourself and--for the benefit of our court reporter, and then make your statement. We have only one person so far who has indicated that they wish to make a statement. So with that, I will not impose any kind of time limit on the statement to be made. However, I would ask that if the statement that is to be made is a lengthy or highly technical statement, that you present to us in writing so that the court reporter can get it entirely correct. Our first and only registered speaker tonight is

Murray Hellein, H-e-l-l-e-i-n.

MR. HELLEIN: Do you want me to come on up there?

MR. HAGAN: Yes, if you would come to the rostrum for us, please, sir?

MR. HELLEIN: You know, on the--your overflow or that waste material that is coming off of there, what effect now will that have on the cattle?

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MR. HAGAN: On the cattle? Does anyone--do you care to address that? Do you have a specific concern for the cattle? You know, are you in the cattle business?

MR. HELLEIN: I have. I've got some people here that do, so that's, you know, when you say you're going to unload it, dump it down Hickory Branch, I was just wondering what effect would that have on the cattle?

MR. HAGAN: I would have to defer, I think, to our third-party consultant and ask him if it has--what the water quality in Hickory Branch is going to be as a result of this discharge.

MR. HINKLE: I think that's a question that we'll have to address in specific terms, you know, in the response section of the final EIS. I don't know if we can actually come up with the numbers at this time.

MR. CHILDRESS: Well, one thing, one thing I would like to say to address that, is that the discharge would only occur during a heavy rainfall event such that the dilution of the wastewater from the facility should be so great, because the rainfall then should be one such that it might occur maybe once in ten years to cause the effluent to overflow. So it would not be a continuous discharge.

MR. HELLEIN: All right. Now, are they going to put a monitoring station down on Hickory Branch there at Murphy Road where it's coming out?

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MR. HAGAN: Yes, there will be a monitoring station there.

MR. HELLEIN: Now, you just put one up down on Whidden Road at Oak Creek.

MR. HAGAN: That's a USGS gauging station. That's not-- that's not one of our monitoring stations.

MR. HELLEIN: Then they'll be one put up on each road though or on Hickory Branch there?

MR. HAGAN: There will be monitoring on the branch, yes.

MR. HELLEIN: All right.

MR. HAGAN: I might point out that the water quality standards for both of these streams are for fish and wildlife. And the numerical standards, the water quality that goes along with that use classification is specifically designed to protect fish and wildlife. And, you know, it would be my presumption that the same water quality would be sufficient to protect that. That's a presumption on my part. And as Mr. Hinkle indicated, we will address that specifically in the final EIS.

MR. HELLEIN: Well, I know on the other ones, runoffs on other mines, it's so brown you can't never see through it. And I just wondered how that--how anything can live in that.

MR. HAGAN: We saw some pretty nice brown water streams this afternoon and they had fish in them.

MR. CHILDRESS: I would like to--I would like to also add that this industry is one which was studied by FPA to identify the type of pollutants that would be in the wastewater. And the only ones that can be identified to include as permit conditions were suspended solids and pH. If they had chemicals within the wastewater toxic enough to do any harm to the fish and wildlife, we would have identified them biochemical effluent guidelines. And also this industry is not one of the industrial categories which were identified in the NRPC as containing toxic materials.

MR. HELLEIN: All right. And what about on the dust control now?

MS. TOLMAN: Dust emissions, do you mean dust that----

MR. HELLEIN: Right.

MS. TOLMAN: OK. That is something also that is evaluated and discussed in the environmental impact statement. The conclusions in the environmental impact statement were to the effect that the emissions, and we're not talking about emissions from handling dry rock or emissions from a

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chemical plant, all we're talking about is earthmoving equipment going out and stirring up dust which is not considered to have any impacts off the property.

MR. HELLEIN: All right.

MS. TOLMAN: Or during the--the dragline stirs up a little dust when it picks up a, you know, a bucketful of earth. The beneficiation plant, the rock product, everything is in a wet condition. So in summary, I hate to paraphrase the EIS because it's a much better source of information than I am sitting here, but briefly it says that dust emissions are not considered to be a significant problem with this mining and benefication operation as presently proposed.

MR. HAGAN: Mr. Bryant had a remark about the water quality.

MR. BRYANT: Yes, I'd just like to point out that, as I mentioned earlier, the department has not taken the position on this mine and while there are recommendations, I'm sure in the record now there's certain monitoring and for certain limitations on the discharge in the draft permit. The department is not prevented and shall consider the inclusion of any other monitoring--any other parameters in the monitoring program and also other parameters as limitations on this mine where we feel that it may be of concern. I know of one parameter that I don't believe is listed in the parameters to be monitored, is fluoride. And that may be a parameter of some concern. However, fluoride levels discharging from phosphate mines that are not connected with a chemical plant are considerably lower. But I'm sure that is one parameter that we'll be concerned about and will be required to be monitored. And there is a current limitation, a state board quality standard limitation for fluorides. And I'm sure that that standard will be applied to this permit. I can't say particularly at this point any other particular parameters that may be included. I won't exclude that there won't be others. In addition as far as the monitoring goes, the department will evaluate where the current monitoring requirements and may identify other locations. If we feel they need to be monitored at least over a period of time to ascertain some downstream impacts or effects, and so very likely there may be a program to monitor these effects for a period to determine the level of impact. And if the impact shows to be very minor, then, of course, those additional monitoring locations may be reduced or the number of parameters be monitored may be reduced at some future time.

MR. HELLEIN: All right. Will there be any effect on any of the wells down there?

MR. HAGAN: Well, you're asking questions, sir, that I believe are really addressed in the EIS. Have you read the

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EIS?

MR. HELLEIN: Not all of it.

MR. HAGAN: Well, you know, you're asking us to reiterate information here that I believe is really contained in the EIS. We're--we're primarily here to get comments on the EIS and, you know, I think we should limit our discussion tonight to comments on the EIS. And I would--I would ask you if you would to take advantage of the information that's in the document. And then if you have some questions that you--that you don't understand or some information that is not included in the document, then we'll be glad to address that.

MR. HELLEIN: All right. Fair enough.

MR. HAGAN: Thank you. Mr. Harwell, from Farmland, is our first maybe on the list. Did you wish to say anything?

MR. HARWELL: Richard didn't have anything to say, so I'll withhold anything.

MR. HAGAN: Our--as I say, our meeting is quite informal. Is there anyone else who has not previously indicated that they wish to speak that would like to make a comment or raise an issue? Sir, would you come to the microphone and identify yourself, please, sir?

MR. ABRONS: I think my voice can carry if you don't mind. I just have a very simple question. One of the conditions is the establishment of a littoral zone.

MR. HAGAN: Would you identify yourself for us?

MR. ABRONS: Yes. Herbert Abrons.

MR. HAGAN: Thank you, sir.

MR. ABRONS: A-b-r-o-n-s, Overlook Groves.

MR. HAGAN: All right.

MR. ABRONS: One of the conditions is the establishment of a littoral zone in the lower portion of Hickory Creek. I just wanted to get a clear idea of what a littoral zone is. I'm not 100 percent sure.

MS. TOLMAN: Ray Hinkle and I are both biologists. I don't know who's going to get to answer this.

MR. HINKLE: You've got the mike.

MS. TOLMAN: The littoral zone refers to an area where the water meets the shore. What you're talking about is you have a slope of land where the water meets the shore. And the littoral zone is that area of interface of water and land where conditions are wet anywhere from the point where it is wet down to a few feet below that where the plants can root and grow and come up out of the water for them to get sunlight. You see plants like your macro benthic invertrates, plants like that where they can--the water is not too deep that they can root and grow and come out of the water. And these littoral zone areas are marsh areas and provide important habitat and play an important role in the wetlands. So if you have a--the opposite would be where you'd have just a straight vertical sloping--I mean a vertical--what am I trying to say--what is the sort of situation--where the water and the land meet, you don't have this zone. You just have the one point. And there's no opportunity for vegetation to grow there.

MR. BRYANT: Jean, in addition littoral zone should reduce the amount of erosion that you might anticipate in a straight body and also serve that function to prevent the disturbance of the stream through the carrying of sediments that are along the bank as well.

MR. HAGAN: Are there any additional comments from the floor or questions from the floor? Yes, sir. Would you come to the podium and identify yourself for us, please, sir?

MR. MISLEVY: Paul Mislevy. My question is: You talk about sand-clay mixing in your reclamation process. Can you tell me where I can find some scientific or research data on this to show specific vegetation, how certain vegetation, whether it be pasture, perennial grasses, whether it be corn, whether it be pine trees, whatever, how various vegetation responds on this type of a mixture? And the second part of the question which maybe should have been first. What is the time period between digging this and getting that sand-clay and getting the vegetation on there again?

T-5

MS. TOLMAN: Answering your first question first, what I'd like to do is get your address. I have some references, sources of information that I don't have with me tonight that

I will send to you. And we'll be happy to provide that, mail it to you when we get back to Atlanta. The second thing is that in the draft environmental impact statement which is available. Copies are available for distribution here tonight. There are several figures depicting the sequence of reclamation. And there is also a table that shows exactly what year during the mine life any specific area will be filled and then what year reclamation of that same area will be complete. So--and in addition there are more details. There are just--some of the drawings are in the EIS, you know, not all of them. And the entire sequence of, I don't know, maybe 20 drawings or something like that is in one of the supplemental information documents which we do not have available here tonight. But if you would like to have those technical background documents, there are two volumes, again if you would give me your name and address we would be happy to send you or anyone else here those drawings. Let me ask Mr. Hinkle. He's looking at it. What page is that?

MR. HINKLE: The table is on page II-78.

MS. TOLMAN: II-78 for the table and the drawings are in the general vicinity.

MR. HINKLE: And they start on page II-67.

MR. TOLMAN: They start on page II-67.

MR. HAGAN: Could I ask you, Paul, if you would spell your last name for our court reporter.

MR. MISLEVY: Yes, M-i-s-l-e-v-y. You have a card there.

MR. HAGAN: Right. Thank you.

MR. MISLEVY: You see, I've been trying to get scientific data. And I have had the computer trying to find me scientific data on this for over a year now. It comes up with zero. And that's why I'm wondering if you have this, where you have university or someone, some line of doing this, where we have this type of information.

MR. HAGAN: I think a great deal of the work on sand-clay mix reclamation is going on right now in this industry right here in Hardee and Polk County. And that's probably why you don't find it in the conventional literature. Because the technology is so new and so developmental at this point. It just hasn't gotten into the standard literature yet. But, you know, it is----

MR. MISLEVY: But Jean said she does have?

MR. HAGAN: It is available, yes. We have what's available.

Are there any other comments?

There are several copies of the environmental impact statement back there at the registration desk if anyone would like to pick up an interesting copy. It's a great cure for insomnia.

If there are no other--if there are no other questions or comments tonight, I would like to thank you-all for coming.

And I have a closing statement which needs to be read into the record if you'll bear with me.

The record of this hearing will remain open through the close of business on July the 28th, 1981. This will allow anyone wishing to submit additional statements sufficient time to do so. Further submissions must be in writing to be included in the official record and should be sent to the attention of John E. Hagan, III, Chief, Environmental Impact Statement Branch, EPA, Region IV, 345 Courtland Street, Northeast, Atlanta, Georgia. Don't try to remember that. It's in your agenda.

The final environmental impact statement will be published after the close of the public comment period. And that is after July the 28th, 1981. The final EIS will consist of a summary of the draft EIS, the agency's tentative decision on the project, responses to the comments received on the draft EIS, the transcript of this public hearing, and any other comments submitted between now and July the 28th, and any other relevant information or evaluations developed after the publication of the draft EIS. A copy of the draft EIS should be retained if you wish to have a complete evaluation of this project.

And I will reiterate to you saying that we do have a two-volume set of technical opinions which goes into considerable more detail on certain items than is included in this draft.

After consideration of all the written comments and of the requirements and policies in the act and appropriate regulations, the EPA Regional Administrator will make determinations regarding the permit issuance. If the determinations are substantially unchanged, the Regional Administrator will so notify all persons making oral statements tonight and all persons submitting written comments. If the determinations are substantially changed, the EPA Regional Administrator will issue a public notice indicating the revised determinations.

Within 30 days of the receipt of the final determination or the date of the public notice, any interested party may request an evidentiary hearing on the determination. Requests for an evidentiary hearing should be addressed to the EPA Regional Hearing Clerk at the address in your agenda. The procedures for filing evidentiary hearing requests are set out in Title 40 of the Code of Federal Regulations, Part 124, Subpart E, or they can also be found in Volume 45 of the Federal Register, page 33498, published on May the 19th, 1980.

Unless a request for an evidentiary hearing is granted, our determination will be the final action for the EPA and will be made public in the agency's record of decision a minimum of 30 days after publication of the final EIS.

Pending final agency action or an evidentiary hearing which is granted by the Regional Administrator, the applicant will be without the permit.

The record upon which a determination to issue is made will include both comments received at this hearing and those received in response to the public notice. The final permit will be issued not sooner than 30 days after issuance of the final EIS, pursuant to 40 Code of Federal Regulations, Subsection 124.61.

Thank you again for taking your evening to come to our hearing. We appreciate your attendance. And I declare this meeting adjourned.

(Hearing concluded.)

STATE OF FLORIDA

COUNTY OF POLK

I, ELAINE TURNER, do hereby certify that a public hearing of the US Environmental Protection Agency, Region IV, in conjunction with Florida Department of Environmental Regulation in re: Farmland Industries proposed phosphate mine and beneficiation plant, Hardee County, Florida, was heard on July 14, 1981; that I was authorized to and did report on a shorthand machine the proceedings and evidence in said hearing and that the above and foregoing pages numbered 1 to 43 inclusive constitute a true and correct transcription of my shorthand report of said proceedings.

IN WITNESS MY HAND, this the 31st day of July, A. D., 1981, at Bartow, Polk County, Florida.

Elaine Turner

3.4 RESPONSES TO TRANSCRIPT COMMENTS

Response T-1

A comparison of the water quality of surface water in the vicinity of the Farmland site and the supernant from several clay settling areas is presented in Table 3-12 of the DEIS. Since the primary discharge from the proposed Farmland facility is to be limited to periods when Hickory Creek's flow is no less than 1.8 X the discharge flow, the resultant concentrations in the creek will not be those of the supernant itself, but rather a combination of the two flows. If the values presented in Table 3-12 of the DEIS are considered in this respect, the mg/l concentrations presented can be adjusted to account for this mixing as follows:

Constituent	Concentration in Surface (mg/l)	Concentration in Surface Waters After Mixing with Discharge (mg/l)
Total Dissolved Solids	200	253
Calcium	20	33
Magnesium	7.4	12.6
Sodium	9.9	12.8
Potassium	3.6	2.8
Bicarbonate	39.	65.
Sulfate	19.	25.
Chloride	29.	25.
Iron	0.76	0.53
Silica	8.2	6.2
Fluoride	0.2	0.8
Nitrate, as N	1.2	1.1
Phosphorus, as PO_4	1.62	1.14
Radium, pci/l	0.12	0.32

None of the levels listed above should have an adverse effect on livestock downstream of the discharge point. The parameter with the greatest potential for adverse effects is fluoride, which if consumed in sufficient quantities can cause tooth and bone lesions, lameness and stiffness, and decreased weight gain and milk yield. To produce adverse effects, fluoride levels would have to be four times (4X) the concentrations after dilution listed above. Even the fluoride level listed for clay pond supernant in Table 3-12 of the DEIS (2.0 mg/l) is below the threshold for adverse effects on livestock (3.0 mg/l).

Response T-2

Farmland's proposed monitoring plans include surface water quality monitoring of Hickory Creek where it enters (south of S.R. 64) and leaves (near the Peace River) the Farmland property. However, the Hickory Creek channel downstream of Murphy Road (upstream of the proposed Farmland monitoring location) borders on both Farmland and Overlook Groves, Inc. Thus, an additional Hickory Creek monitoring station (at Murphy Road, or S.R. 661) has been added as a requirement (included in NEPA Requirement No. 12) of the Draft NPDES permit for the project. The parameters to be analyzed for and the frequency of sampling at this location will be the same as for the other weekly surface water sampling locations which Farmland has proposed in their "Monitoring Plan" submitted to and approved by Hardee County.

Response T-3

Fugitive dust emissions from the proposed mining operation are discussed on pages 3-9 thru 3-12 of the DEIS.

Response T-4

The projected drawdown resulting from groundwater withdrawal for the proposed project is shown in Figure 3-8 of the DEIS. The contour lines shown in this figure represent the number of feet which the potentiometric level of the Floridan Aquifer (i.e., the level which water would rise to in an open well) will be lowered by in the vicinity of the proposed mine. As indicated in this figure, the proposed groundwater withdrawals will reduce the water levels in open wells in the immediate vicinity of the mine, but the effect should be less than 1-foot beyond about 3.5 miles from the well from which Farmland plans to pump.

Response T-5

Information on sand-clay mix reclamation was sent to Mr. Paul Mislevy.

4.0
COORDINATION

4.1 FINAL ENVIRONMENTAL IMPACT STATEMENT COORDINATION LIST

The following Federal, state and local agencies, public officials, organizations, and interest groups have been requested to comment on this impact statement.

Federal Agencies

Bureau of Outdoor Recreation
Bureau of Mines
Coast Guard
Corps of Engineers
Council on Environmental Quality
Department of Agriculture
Department of Commerce
Department of Education
Department of the Interior
Department of Transportation
Department of Health and Human Services
Department of Housing and Urban Development
Department of Energy
Federal Highway Administration
Fish and Wildlife Service
Food and Drug Administration
Forest Service
Geological Survey
National Park Service
Economic Development Administration
Soil Conservation Service

Members of Congress

Honorable Lawton Chiles
United States Senate

Honorable Sam Gibbons
U.S. House of Representatives

Honorable L.A. Bafalis
U.S. House of Representatives

Honorable Paula Hawkins
United States Senate

Honorable Andy P. Ireland
U.S. House of Representatives

State

Honorable D. Robert Graham
Governor
Department of Natural Resources
Department of Agriculture and Consumer Services
Department of Veterans and Community Affairs
Game and Freshwater Fish Commission
Department of Administration
Department of State
Environmental Regulation Commission
Department of Commerce
Department of Health and Rehabilitative Services
Department of Environmental Regulation
Department of Transportation

Local and Regional

Polk County Commission
Manatee County Commission
DeSoto County Commission
Hardee County Commission
Hardee County Building & Zoning Department
Central Florida Regional Planning Council
Southwest Florida Water Management District

Interest Groups

The Fertilizer Institute
Florida Phosphate Council
Florida Audubon Society
Florida Sierra Club
Manasota 88
Florida Defenders of the Environment
Izaak Walton League of America
Florida Wildlife Federation

5.0

LIST OF PREPARERS

The Draft EIS for the Farmland project was prepared for EPA by Woodward-Clyde Consultants (WCC) of Clifton, New Jersey using the third party EIS preparation method. The names and qualifications of the WCC staff responsible for the preparation of this EIS are presented in Table 5-1. An independent evaluation of all information presented in the EIS was also performed by the following EPA officials:

Name	Responsibility
Robert B. Howard	Chief, EIS Preparation Section
A. Jean Tolman	EIS Project Officer
Lionel Alexander III	NPDES Permit Coordinator
D. Brian Mitchell	Air Quality
Doyle Brittain	Air Quality
James E. Orban	Noise
A. Eugene Coker	Geology and Groundwater
H. Richard Payne	Radiation
Curtis F. Fehn	Groundwater
Thomas R. Cavinder	Surface Water
John T. Marlar	Surface WAter
William L. Kruczynski	Biology and Ecology
Delbert B. Hicks	Biology and Ecology

For information on the material presented in this section, contact A. Jean Tolman at (404) 881-7458 (FTS/257-7458).

Table 5-1. LIST OF PREPARERS.

Name	Qualifications	Responsibility
Richard A. Millet	M.S. Civil Engineering; Principal and Vice President, Woodward-Clyde Consultants, 17 years experience including the direction of interdiscipline studies for phosphate mining projects and power plant siting projects.	Project Sponsor
Raymond L. Hinkle	M.S. Wildlife Management; Project Scientist, Woodward-Clyde Consultants; 9 years experience in the preparation of environmental impact statements for a variety of projects including phosphate mines.	Project Manager
Perry H. Fontana	M.S. Meteorology; Staff Scientist, Woodward-Clyde Consultants; 4 years experience in environmental studies involving meteorology and air quality including air quality impact assessments for phosphate rock processing operations.	Air Quality, Meteorology, and Noise
Donald R. Ganser	B.S. Geology; Project Geologist, Woodward-Clyde Consultants; 10 years experience in conducting engineering geologic investigations and groundwater studies for projects including phosphate mining operations.	Geology
Ralph E. Luebs	Ph.D. Soil Fertility; Agronomist, Woodward-Clyde Consultants; 33 years experience including the planning of and interpretation of results from soils investigations for evaluating the impact of mining on the environment and for reclamation of surface mined land.	Soils
Leland R. Bunney	M.S. Physical Chemistry; Radiological Chemist, Woodward-Clyde Consultants; 31 years experience in radiochemistry, nuclear chemistry, ion exchange, trace element analyses, and the evaluation of environmental hazards of radioactive materials.	Radiation
John C. Halepaska	Ph.D. Geoscience; Senior Hydrologist, Woodward-Clyde Consultants; 18 years experience in the study of various phases of groundwater hydrology including the theory and control of seepage from earth tailings dams, earth water retention dams, and gypsum fields at phosphate fertilizer plants.	Hydrology
Gary G. Kaufman	M.S. Environmental Engineering; Senior Staff Engineer, Woodward-Clyde Consultants; 9 years experience including the evaluation of potential water quality effects of solid and hazardous waste disposal.	Water Quality
Thomas G. Campbell	M.S. Marine Sciences; Staff Scientist, Woodward-Clyde Consultants; 6 years experience in the collection and analysis of data from aquatic environments as well as impact analysis.	Aquatic Ecology
Wayne F. MacCallum	M.S. Wildlife Management; Senior Project Scientist, Woodward-Clyde Consultants; 9 years experience in the collection and analysis of data from terrestrial environments and impact analyses for a variety of projects.	Terrestrial Ecology
Milton G. Carter	M.C.R.P. City and Regional Planning; Staff Scientist, Woodward-Clyde Consultants; 3 years experience in evaluating socioeconomics impacts for both large and small scale industrial developments.	Socioeconomics
Robert F. Brewer	Ph.D. Horticulture and Soil Chemistry; Associate Horticulturist at the University of California with 21 years experience as a consultant in the area of air pollution effects on agricultural crops, including citrus.	Citrus
Jerry J. Cape	B.S. Mining Engineering; Consulting Engineer (P.E.) with 18 years experience in minerals development projects from mining prospect data evaluations through conceptual planning, construction, and start-up.	Alternatives and Mine Plan Evaluation

6.0
APPENDIX

6.1 DRAFT NPDES PERMIT FOR THE FARMLAND INDUSTRIES, INC. MINE PROJECT, HARDEE COUNTY, FLORIDA mit No.: FL0037915

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET
ATLANTA, GEORGIA 30365

AUTHORIZATION TO DISCHARGE UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the Clean Water Act, as amended (33 U.S.C. 1251 et. seq; the "Act"),

Farmland Industries
P. O. Box 441
Mulberry, Florida 33860

is authorized to discharge from a facility located at

about 27° 27' 54" - Latitude
81° 53' 06" - Longitude
Hardee County, Florida

DRAFT

to receiving waters named

DSN 001 - Hickory Creek
DSN 002 - Oak Creek

in accordance with effluent limitations, monitoring requirements and other conditions set forth in Parts I, II, and III hereof. The permit consists of this cover sheet, Part I 4 pages(s), Part II 12 page(s) and Part III 7 page(s).

This permit shall become effective on

This permit and the authorization to discharge shall expire at midnight,

Date Signed

Howard D. Zeller
Acting Director
Enforcement Division

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. During the period beginning on the effective date of this permit and lasting through the term of this permit, the permittee is authorized to discharge from outfall(s) serial number(s) 001 Clearwater Pond to Hickory Creek.

Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations				Monitoring Requirements	
	kg/day (lbs/day)		Other Units (Specify)			
	Daily Avg	Daily Max	Daily Avg	Daily Max	Measurement Frequency (during discharge)	Sample Type
Flow—m³/Day (MGD)			1.24 MGD		Continuous	Recorder
Total Suspended Solids	--	--	30 mg/1	60 mg/1	1/week	24-hr. composite
Biochemical Oxygen Demand (5-day)	--	--	2 mg/1	3 mg/1	1/week	24-hr. composite
Specific Conductance (uohms/cm @ 25°C)	--	--	550	1100	1/week	24-hr. composite
Radium*	--	--	5pci/1	10pci/1	1/week	24-hr. composite

*Combined Radium 226 & 228

The pH shall not be less than 6.0 standard units nor greater than 8.5 standard units and shall be monitored once/week during discharge with a grab sample.

There shall be no discharge of floating solids or visible foam in other than trace amounts.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): nearest accessible point after final treatment but prior to actual discharge or mixing with the receiving waters.

2. During the period beginning on the effective date of this permit and lasting through the term of this permit, the permittee is authorized to discharge from outfall(s) serial number(s) 002, Reclamation Area to Oak Creek.

Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations				Monitoring Requirements	
	kg/day (lbs/day)		Other Units (Specify)			
	Daily Avg	Daily Max	Daily Avg	Daily Max	Measurement Frequency (during discharge)	Sample Type
Flow—m³/Day (MGD)			2.51 MGD		Continous	Recorder
Total Suspended Solids	—	—	30 mg/1	60 mg/1	1/week	24-hr. composite
Biochemical Oxygen Demand (5-day)	—	—	2 mg/1	3 mg/1	1/week	24-hr. composite
Specific Conductance (uohms/cm @ 25°C)	—	—	550	1100	1/week	24-hr. composite
Radium *	—	—	5pci/1	10pci/1	1/month	24-hr. composite

*Combined Radium 226 & 228

The pH shall not be less than 6.0 standard units nor greater than 8.5 standard units and shall be monitored once/week during discharge with a grab sample.

There shall be no discharge of floating solids or visible foam in other than trace amounts.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): nearest accessible point after final treatment but prior to actual discharge or mixing with the receiving waters.

8. Power Failures

The permittee is responsible for maintaining adequate safeguards to prevent the discharge of untreated or inadequately treated wastes during electrical power failures either by means of alternate power sources, standby generators or retention of inadequately treated effluent. Should the treatment works not include the above capabilities at time of permit issuance, the permittee must furnish within six months to the Permit Issuing Authority, for approval, an implementation schedule for their installation, or documentation demonstrating that such measures are not necessary to prevent discharge of untreated or inadequately treated wastes. Such documentation shall include frequency and duration of power failures and an estimate of retention capacity of untreated effluent.

9. Onshore or Offshore Construction

This permit does not authorize or approve the construction of any onshore or offshore physical structures or facilities or the undertaking of any work in any waters of the United States.

B. RESPONSIBILITIES

1. Right of Entry

The permittee shall allow the Permit Issuing Authority and/or authorized representatives (upon presentation of credentials and such other documents as may be required by law) to:

a. Enter upon the permittee's premises where an effluent source is located or in which any records are required to be kept under the terms and conditions of this permit;

b. Have access to and copy at reasonable times any records required to be kept under the terms and conditions of this permit;

c. Inspect at reasonable times any monitoring equipment or monitoring method required in this permit;

d. Inspect at reasonable times any collection, treatment, pollution management or discharge facilities required under the permit; or

e. Sample at reasonable times any discharge of pollutants.

2. Transfer of Ownership or Control

A permit may be transferred to another party under the following conditions:

a. The permittee notifies the Permit Issuing Authority of the proposed transfer;

b. A written agreement is submitted to the Permit Issuing Authority containing the specific transfer date and acknowledgement that the existing permittee is responsible for violations up to that date and the new permittee liable thereafter.

Transfers are not effective if, within 30 days of receipt of proposal, the Permit Issuing Authority disagrees and notifies the current permitttee and the new permittee of the intent to modify, revoke and reissue, or terminate the permit and to require that a new application be filed.

3. Availability of Reports

Except for data determined to be confidential under Section 308 of the Act, (33 U.S.C. 1318) all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the State water pollution control agency and the Permit Issuing Authority. As required by the Act, effluent data shall not be considered confidential. Knowingly making any false statement on any such report may result in the imposition of criminal penalties as provided for in Section 309 of the Act (33 U.S.C. 1319).

4. Permit Modification

After notice and opportunity for a hearing, this permit may be modified, terminated or revoked for cause (as described in 40 CFR 122.15 et seq) including, but not limited to, the following:

a. Violation of any terms or conditions of this permit;

b. Obtaining this permit by misrepresentation or failure to disclose fully all relevant facts;

c. A change in any condition that requires either temporary interruption or elimination of the permitted discharge; or

d. Information newly acquired by the Agency indicating the discharge poses a threat to human health or welfare.

If the permittee believes that any past or planned activity would be cause for modification or revocation and reissuance under 40 CFR 122.15 et seq, the permittee must report such information to the Permit Issuing Authority. The submission of a new application may be required of the permittee.

5. Toxic Pollutants

a. Notwithstanding Part II (B)(4) above, if a toxic effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is established under Section 307(a) of the Act for a toxic pollutant which is present in the discharge authorized herein and such standard or prohibition is more stringent than any limitation for such pollutant in this permit, this permit shall be revoked and reissued or modified in accordance with the toxic effluent standard or prohibition and the permittee so notified.

b. An effluent standard established for a pollutant which is injurious to human health is effective and enforceable by the time set forth in the promulgated standard, even though this permit has not as yet been modified as outlined in Condition 5a.

6. Civil and Criminal Liability

Except as provided in permit conditions on "Bypassing", Part II (A) (6), nothing in this permit shall be construed to relieve the permittee from civil or criminal penalties for noncompliance.

7. Oil and Hazardous Substance Liability

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under Section 311 of the Act (33 U.S.C. 1321).

8. State Laws

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable State law or regulation under authority preserved by Section 510 of the Act.

9. **Property Rights**

The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of Federal, State, or local laws or regulations.

10. **Severability**

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit shall not be affected thereby.

11. **Permit Continuation**

A new application shall be submitted at least 180 days before the expiration date of this permit. Where EPA is the Permit Issuing Authority, the terms and conditions of this permit are automatically continued in accordance with 40 CFR 122.5, provided that the permittee has submitted a timely and sufficient application for a renewal permit and the Permit Issuing Authority is unable through no fault of the permittee to issue a new permit before the expiration date.

C. MONITORING AND REPORTING

1. **Representative Sampling**

Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge.

2. **Reporting**

Monitoring results obtained during each calendar month (quarter if monitoring frequency is quarterly) shall be summarized for each month (quarter) and reported on a Discharge Monitoring Report Form (EPA No. 3320-1). Forms shall be submitted at the end of each calendar quarter and shall be postmarked no later than the 28th day of the month following the end of the quarter. The first report is due by the 28th day of the month following the first full quarter after the effective date of this permit.

Signed copies of these, and all other reports required herein, shall be submitted to the Permit Issuing Authority at the following address(es):

Compliance Branch
Environmental Protection Agency
Region IV
345 Courtland Street, N.E.
Atlanta, Georgia 30365

FL Dept. of Environmental Regulation
Division of Environmental Programs
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32301

3. Test Procedures

Test procedures for the analysis of pollutants shall conform to all regulations published pursuant to Section 304(h) of the Clean Water Act, as amended (40 CFR 136, "Guidelines Establishing Test Procedures for the Analysis of Pollutants").

4. Recording of Results

For each measurement or sample taken pursuant to the requirements of this permit, the permittee shall record the following information:

a. The exact place, date, and time of sampling;

b. The person(s) who obtained the samples or measurements;

c. The dates the analyses were performed;

d. The person(s) who performed the analyses;

e. The analytical techniques or methods used; and

f. The results of all required analyses.

5. Additional Monitoring by Permittee

If the permittee monitors any pollutant at the location(s) designated herein more frequently than required by this permit, using approved analytical methods as specified above, the results of such monitoring shall be included in the calculation and reporting of the values required in the Discharge Monitoring Report Form (EPA No. 3320-1). Such increased frequency shall also be indicated.

6. **Records Retention**

The permittee shall maintain records of all monitoring including: sampling dates and times, sampling methods used, persons obtaining samples or measurements, analyses dates and times, persons performing analyses, and results of analyses and measurements. Records shall be maintained for three years or longer if there is unresolved litigation or if requested by the Permit Issuing Authority.

D. DEFINITIONS

1. **Permit Issuing Authority**

The Regional Administrator of EPA Region IV or designee.

2. **Act**

"Act" means the Clean Water Act (formerly referred to as the Federal Water Pollution Control Act) Public Law 92-500, as amended by Public Law 95-217 and Public Law 95-576, 33 U.S.C. 1251 et seq.

3. **Mass/Day Measurements**

a. The "average monthly discharge" is defined as the total mass of all daily discharges sampled and/or measured during a calendar month on which daily discharges are sampled and measured, divided by the number of daily discharges sampled and/or measured during such month. It is, therefore, an arithmetic mean found by adding the weights of the pollutant found each day of the month and then dividing this sum by the number of days the tests were reported. This limitation is identified as "Daily Average" or "Monthly Average" in Part I of the permit and the average monthly discharge value is reported in the "Average" column under "Quantity" on the Discharge Monitoring Report (DMR).

b. The "average weekly discharge" is defined as the total mass of all daily discharges sampled and/or measured during a calendar week on which daily discharges are sampled and/or measured divided by the number of daily discharges sampled and/or measured during such week. It is, therefore, an arithmetic mean found by adding the weights of pollutants found each day of the week and then dividing this sum by the number of days the tests were reported. This limitation is identified as "Weekly Average" in Part I of the permit and the average weekly discharge value is reported in the "Maximum" column under "Quantity" on the DMR.

c. The "maximum daily discharge" is the total mass (weight) of a pollutant discharged during a calendar day. If only one sample is taken during any calendar day the weight of pollutant calculated from it is the "maximum daily discharge". This limitation is identified as "Daily Maximum," in Part I of the permit and the highest such value recorded during the reporting period is reported in the "Maximum" column under "Quantity" on the DMR.

4. Concentration Measurements

a. The "average monthly concentration," other than for fecal coliform bacteria, is the concentration of all daily discharges sampled and/or measured during a calendar month on which daily discharges are sampled and measured divided by the number of daily discharges sampled and/or measured during such month (arithmetic mean of the daily concentration values). The daily concentration value is equal to the concentration of a composite sample or in the case of grab samples is the arithmetic mean (weighted by flow value) of all the samples collected during that calendar day. The average monthly count for fecal coliform bacteria is the geometric mean of the counts for samples collected during a calendar month. This limitation is identified as "Monthly Average" or "Daily Average" under "Other Limits" in Part I of the permit and the average monthly concentration value is reported under the "Average" column under "Quality" on the DMR.

b. The "average weekly concentration," other than for fecal coliform bacteria, is the concentration of all daily discharges sampled and/or measured during a calendar week on which daily discharges are sampled and measured divided by the number of daily discharges sampled and/or measured during such week (arithmetic mean of the daily concentration values). The daily concentration value is equal to the concentration of a composite sample or in the case of grab samples is the arithmetic mean (weighted by flow value) of all samples collected during that calendar day. The average weekly count for fecal coliform bacteria is the geometric mean of the counts for samples collected during a calendar week. This limitation is identified as "Weekly Average" under "Other Limits" in Part I of the permit and the average weekly concentration value is reported under the "Maximum" column under "Quality" on the DMR.

c. The "maximum daily concentration" is the concentration of a pollutant discharged during a calendar day. It is identified as "Daily Maximum" under "Other Limits" in Part I of the permit and the highest such value recorded during the reporting period is reported under the "Maximum" column under "Quality" on the DMR.

5. Other Measurements

   a. The effluent flow expressed as M^3/day (MGD) is the 24 hour average flow averaged monthly. It is the arithmetic mean of the total daily flows recorded during the calendar month. Where monitoring requirements for flow are specified in Part I of the permit the flow rate values are reported in the "Average" column under "Quantity" on the DMR.

   b. Where monitoring requirements for pH, dissolved oxygen or fecal coliform are specified in Part I of the permit the values are generally reported in the "Quality or Concentration" column on the DMR.

6. Types of Samples

   a. Composite Sample - A "composite sample" is any of the following:

      (1) Not less than four influent or effluent portions collected at regular intervals over a period of 8 hours and composited in proportion to flow.

      (2) Not less than four equal volume influent or effluent portions collected over a period of 8 hours at intervals proportional to the flow.

      (3) An influent or effluent portion collected continuously over a period of 24 hours at a rate proportional to the flow.

   b. Grab Sample: A "grab sample" is a single influent or effluent portion which is not a composite sample. The sample(s) shall be collected at the period(s) most representative of the total discharge.

7. Calculation of Means

   a. Arithmetic Mean: The arithmetic mean of any set of values is the summation of the individual values divided by the number of individual values.

   b. Geometric Mean: The geometric mean of any set of values is the Nth root of the product of the individual values where N is equal to the number of individual values. The geometric mean is equivalent to the antilog of the arithmetic mean of the logarithms of the individual values. For purposes of calculating the geometric mean, values of zero (0) shall be considered to be one (1).

c. Weighted by Flow Value: Weighted by flow value means the summation of each concentration times its respective flow divided by the summation of the respective flows.

8. Calendar Day

a. A calendar day is defined as the period from midnight of one day until midnight of the next day. However, for purposes of this permit, any consecutive 24-hour period that reasonably represents the calendar day may be used for sampling.

15. Farmland shall conduct a monitoring program to assess their wetlands restoration efforts. Three wetland restoration areas (the 24-acre wetland restoration area of Sand/Clay Mix Area I (S/C 1, within Section 14), the reclaimed Oak Creek stream channel in Special Mix Areas 1 and 2, and the littoral zone wetlands and adjacent hydric tree species plantings within the reclaimed Hickory Creek stream channel) shall be monitored for 1-year each according to the following program:

    (1) Beginning 12 weeks after completion of the reclamation of each respective area, the water level shall be monitored biweekly; and (2) following the first full growing season, a biological assessment shall be performed by a degreed biologist for each of the three areas; the assessment shall include a listing of plant species present, mapping of their location, a visual estimate of the amount of cover provided by the wetland species, and qualitative and quantitative sampling of the benthic macroinvertebrates to yield a list of the species present and their density.

    After the above-described monitoring program is performed for the experimental wetland area of the Oak Creek stream channel, a long-term monitoring program shall be initiated in this area. This long-term monitoring program shall consist of a yearly biological assessment by a degreed biologist to include the items in (2) above. In addition, in order to determine the degree of subsidence occurring, if any, in the marsh depression area in S/C 1, the maximum depth of the marsh depression area relative to a fixed elevation point shall be monitored quarterly for the life of this permit. Farmland shall submit annual reports of the described monitoring program to the EPA Region IV Ecology Branch.

16. Farmland shall provide bona fide researchers reasonable opportunity to salvage paleontological specimens and information for the duration of mining operations on the Farmland site. Prospective collectors availing themselves of this provision must have credentials verified by the Florida State Museum. Such individuals shall be allowed regular access to dragline spoil windrows, ore residue, ore piles and reject piles, subject to Farmland's requirements for safety and visitor accountability and on a strictly not-to-interfere with mining basis.

17. Unless specified otherwise by a preceding condition in this permit, Farmland shall carry out its mining project in complete accordance with the applicant's proposed action described and evaluated in the Farmland EIS, including the employment of all mitigating measures presented as part of the proposed action. However, this shall not preclude the imposition of any additional or more stringent conditions which may be required by any local or state regulatory agency or governmental entity.

PART III

OTHER REQUIREMENTS

1. In accordance with Section 306(d) of the Federal Water Pollution Control Act (PL92-500) the standards of performance for conventional pollutants as contained in this permit shall not be made any more stringent during a ten year period begining on the date of completion of such construction or during the period of depreciation or amortization of such facility for the purposes of section 167 or 169 (or both) of the Internal Revenue Code of 1954, whichever period ends first. The provision of this this Section 306(d) do not limit the authority of the Environmental Protection Agency to modify the permit to require compliance with a toxic effluent limitations promulgated under BAT or toxic pollutant standard established under Section 307(a) of the FWPCA.

National Environmental Policy Act (NEPA) Requirements

The below listed requirements, conditions and limitations were recommended in the Farmland Industries Phosphate Mine site specific Environmental Impact Statement, and are hereby incorporated into National Pollutant Discharge Elimination System Permit No. FL0037915 in accordance with 40 CFR 122.62 (d)(9).

1. Farmland shall exclude the utilization of any conventional aboveground slime-disposal areas with the exception of Clay Settling areas I and II described in the EIS. Farmland's waste disposal and reclamation plan shall employ a sand-clay mix process as described in the EIS. Only Settling Area II shall remain active for the life of the mine.

2. Farmland shall employ high profile overburden stacking in the mining of the area covered by Settling Area II to the maximum extent compatible with toe spoiling of the leach zone. Any increase in below ground waste storage realized by the use of this technique shall be reflected in a lower reclaimed elevation for Settling Area II.

3. Farmland shall meet the requirements of its Southwest Florida Water Management District (SWFWMD) Consumptive Use Permit.

4. Farmland shall provide storage that allows recirculation of water recovered from slimes. The water circulation system and storage capacity shall be as described in the EIS for Farmland's proposed project.

5. During the dragline mining activity, Farmland shall employ the technique of leach zone management by toe spoiling, i.e., overburden from near the interface with the matrix (the leach zone, where radioactivity in the overburden is concentrated) shall be placed at the toe of the spoil pile and covered with overburden from upper strata.

6. Farmland shall meet county and state reclamation requirements.

7. Farmland shall preserve from mining, or any other disturbance, the areas proposed for preservation in Farmland's proposed action in the EIS. These areas are depicted in the attached map, Figure 1. Specifically, the total preserved acreage of 2530 acres shall include a minimum of 510 acres of forested uplands, 885 acres of freshwater swamp, 107 acres of freshwater marsh, and 354 acres of pine flatwoods/palmetto range, all in the locations depicted in Figure 1.

8. Farmland shall increase the acreage reclaimed as forest habitat and provide corridors for wildlife movement between reclaimed and preserved areas by planting additional areas as depicted in Figure 2, attached. Beginning with the experimental revegetation program conducted on the first available (236-acre) sand/clay mix reclamation area, Farmland shall contact the District Forester or the State Forester, Florida Forest Service, for assistance in the forestry aspects of the reclamation program.

9. Farmland shall incorporate into its reclamation plan a littoral zone at the downstream extent of the proposed reclaimed open lake in the Hickory Creek channel. this littoral zone shall be at least 500 feet wide and at a depth suitable for emergent vegetation, providing for the establishment of 7-10 acres of marsh community.

10. Before beginning any land-disturbing activities, Farmland shall develop a program whereby indigo snakes encountered in the work area are captured for relocation to other areas of suitable habitat in the site region. This program shall include informing Farmland workers of the importance of the indigo snake, familiarizing them with its appearance and instructing them as to its preservation. In addition, the gopher tortoise population shall be protected to the extent possible in the site area. Farmland shall coordinate its recovery and relocation efforts with the Florida Endangered Species Coordinator, and shall maintain a record of the program to be submitted to the U.S. Fish and Wildlife Service.

11. Farmland shall comply with the categorization of wetlands present on the mine property as set forth in the EIS and illustrated in Figure 3, attached. In summary, within Category 1 wetlands, Farmland shall not mine, shall limit activities to those essential to and unavoidable for the mining operation, and shall otherwise take all reasonable measures to preserve all Category 1 wetlands. Additionally, Farmland shall restore the total acreage of Category 2 wetlands disturbed by mining. Specifically, the acreage to be restored as freshwater marsh or swamp according to Farmland's proposed action in the EIS shall be increased by at least 116 acres (from 398 acres to a minimum of 514 acres). This shall be done by differential grading and settling of sand/clay mix areas in addition to that already proposed by Farmland in the EIS.

12. Farmland shall monitor the surface water quality of Hickory Creek where it intersects Murphy Road (SR 661) and of Troublesome Creek at a point within 500 feet downstream of where the Hickory Creek diversion flow enters Troublesome Creek. Parameters monitored shall include: temperature, DO, pH, specific conductance, redox potential, alkalinity species, suspended solids, fluoride, total phosphorus, ammonia, organic nitrogen, nitrate and nitrite, total Kjeldahl, total nitrogen and turbidity. Frequency of sampling shall be weekly, and the duration of sampling shall be for the life of the mine for the Hickory Creek station, and for the duration of the diversion for the Troublesome Creek station.. The data collected at these two stations shall be reported monthly to Hardee County, EPA and FDER.

13. During the second half of mine year 12 and all of mine year 13, Farmland shall monitor the level of the Surficial Aquifer within the preserved portion of Hickory Creek at the location depicted on Figure 3. The level of the Surficial Aquifer at the designated location shall not be lowered by more than three feet due to the mining activities. To prevent exceeding this three-foot limit, Farmland shall employ rim ditching, rapid refilling of mine pits or any other appropriate mitigative measure to protect the preserved area from dewatering.

14. Farmland shall monitor the water quality of the Surficial Aquifer at the location identified on the attached map, Figure 3. The following parameters shall be monitored on a quarterly basis for the life of the mine or until such time that EPA and Farmland agree that the compiled data indicate no adverse impact on the Surficial Aquifer: pH, specific conductance, sulfates, fluoride, and ammonia. A written report summarizing the data shall be submitted once a year to EPA.

The flow in Hickory Creek must be at least 1.8 times the discharge flow to the creek.

The flow in Oak Creek must be at least 1.6 times the discharge flow to the creek.

Any overflow from facilities designed, constructed, and maintained to contain or treat the volume of wastewater which would result from a 10-year, 24-hour precipitation event shall not be subject to the suspended solids effluent limitation or the pH limitations listed on the preceding pages. Monitoring and reporting shall be required for all the parameters including TSS and pH.

The effluent limits and any additional requirements specified in the attached certification supersede any less stringent effluent limits listed above. During any time period in which more stringent state certification effluent limits are stayed or inoperable, the effluent limits listed above shall be in effect and fully enforceable.

2. DEFINITIONS

The term "10-year, 24-hour precipitation event" shall mean the maximum 24-hour precipitation event with a probable re-occurrence interval of once in 10 years. This information is available in "Weather Bureau Technical Paper No. 40, May 1961 and may be obtained from the Environmental Data Service, National Oceanic and Atmospheric Administration, U.S. Department of Commerce.

B. SCHEDULE OF COMPLIANCE

1. The permittee shall achieve compliance with the effluent limitations specified for discharges in accordance with the following schedule:

   a. Permittee shall comply with the effluent limitations by the effective date of the permit.

2. No later than 14 calendar days following a date identified in the above schedule of compliance, the permittee shall submit either a report of progress or, in the case of specific actions being required by identified dates, a written notice of compliance or noncompliance. In the latter case, the notice shall include the cause of noncompliance, any remedial actions taken, and the probability of meeting the next scheduled requirement.

A. MANAGEMENT REQUIREMENTS

1. Discharge Violations

All discharges authorized herein shall be consistent with the terms and conditions of this permit. The discharge of any pollutant more frequently than, or at a level in excess of, that identified and authorized by this permit constitutes a violation of the terms and conditions of this permit. Such a violation may result in the imposition of civil and/or criminal penalties as provided in Section 309 of the Act.

2. Change in Discharge

Any anticipated facility expansions, production increases, or process modifications which will result in new, different, or increased discharges of pollutants must be reported by submission of a new NPDES application or, if such changes will not violate the effluent limitations specified in this permit, by notice to the permit issuing authority of such changes. Following such notice, the permit may be modified to specify and limit any pollutants not previously limited.

3. Noncompliance Notification

a. Instances of noncompliance involving toxic or hazardous pollutants should be reported as outlined in Condition 3c. All other instances of noncompliance should be reported as described in Condition 3b.

b. If for any reason, the permittee does not comply with or will be unable to comply with any discharge limitation specified in the permit, the permittee shall provide the Permit Issuing Authority with the following information at the time when the next Discharge Monitoring Report is submitted.

(1) A description of the discharge and cause of noncompliance;
(2) The period of noncompliance, including exact dates and times and/or anticipated time when the discharge will return to compliance; and
(3) Steps taken to reduce, eliminate, and prevent recurrence of the noncomplying discharge.

c. Toxic or hazardous discharges as defined below shall be reported by telephone within 24 hours after permittee becomes aware of the circumstances and followed up with information in writing as set forth in Condition 3b. within 5 days, unless this requirement is otherwise waived by the Permit Issuing Authority:

(1) Noncomplying discharges subject to any applicable toxic pollutant effluent standard under Section 307(a) of the Act;
(2) Discharges which could constitute a threat to human health, welfare or the environment. These include unusual or extraordinary discharges such as those which could result from bypasses, treatment failure or objectionable substances passing through the treatment plant. These include Section 311 pollutants or pollutants which could cause a threat to public drinking water supplies.

d. Nothing in this permit shall be construed to relieve the permittee from civil or criminal penalties for noncompliance.

4. Facilities Operation

All waste collection and treatment facilities shall be operated in a manner consistent with the following:

a. The facilities shall at all times be maintained in a good working order and operated as efficiently as possible. This includes but is not limited to effective performance based on design facility removals, adequate funding, effective management, adequate operator staffing and training, and adequate laboratory and process controls (including appropriate quality assurance procedures); and

b. Any maintenance of facilities, which might necessitate unavoidable interruption of operation and degradation of effluent quality, shall be scheduled during noncritical water quality periods and carried out in a manner approved by the Permit Issuing Authority.

c. The permittee, in order to maintain compliance with this permit shall control production and all discharges upon reduction, loss, or failure of the treatment facility until the facility is restored or an alternative method of treatment is provided.

5. Adverse Impact

The permittee shall take all reasonable steps to minimize any adverse impact to waters of the United States resulting from noncompliance with any effluent limitations specified in this permit, including such accelerated or additional monitoring as necessary to determine the nature of the noncomplying discharge.

6. Bypassing

"Bypassing" means the intentional diversion of untreated or partially treated wastes to waters of the United States from any portion of a treatment facility. Bypassing of wastewaters is prohibited unless all of the following conditions are met:

a. The bypass is unavoidable-i.e. required to prevent loss of life, personal injury or severe property damage;

b. There are no feasible alternatives such as use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment down time;

c. The permittee reports (via telephone) to the Permit Issuing Authority any unanticipated bypass within 24 hours after becoming aware of it and follows up with written notification in 5 days. Where the necessity of a bypass is known (or should be known) in advance, prior notification shall be submitted to the Permit Issuing Authority for approval at least 10 days beforehand, if possible. All written notifications shall contain information as required in Part II (A)(3)(b); and

d. The bypass is allowed under conditions determined to be necessary by the Permit Issuing Authority to minimize any adverse effects. The public shall be notified and given an opportunity to comment on bypass incidents of significant duration to the extent feasible.

This requirement is waived where infiltration/inflow analyses are scheduled to be performed as part of an Environmental Protection Agency facilities planning project.

7. Removed Substances

Solids, sludges, filter backwash, or other pollutants removed in the course of treatment or control of wastewaters shall be disposed of in a manner such as to prevent any pollutant from such materials from entering waters of the United States.

PART III

OTHER REQUIREMENTS

1. In accordance with Section 306(d) of the Federal Water Pollution Control Act (PL92-500) the standards of performance for conventional pollutants as contained in this permit shall not be made any more stringent during a ten year period begining on the date of completion of such construction or during the period of depreciation or amortization of such facility for the purposes of section 167 or 169 (or both) of the Internal Revenue Code of 1954, whichever period ends first. The provision of this this Section 306(d) do not limit the authority of the Environmental Protection Agency to modify the permit to require compliance with a toxic effluent limitations promulgated under BAT or toxic pollutant standard established under Section 307(a) of the FWPCA.

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    (1) Beginning 12 weeks after completion of the reclamation of each respective area, the water level shall be monitored biweekly; and (2) following the first full growing season, a biological assessment shall be performed by a degreed biologist for each of the three areas; the assessment shall include a listing of plant species present, mapping of their location, a visual estimate of the amount of cover provided by the wetland species, and qualitative and quantitative sampling of the benthic macroinvertebrates to yield a list of the species present and their density.

    After the above-described monitoring program is performed for the experimental wetland area of the Oak Creek stream channel, a long-term monitoring program shall be initiated in this area. This long-term monitoring program shall consist of a yearly biological assessment by a degreed biologist to include the items in (2) above. In addition, in order to determine the degree of subsidence occurring, if any, in the marsh depression area in S/C 1, the maximum depth of the marsh depression area relative to a fixed elevation point shall be monitored quarterly for the life of this permit. Farmland shall submit annual reports of the described monitoring program to the EPA Region IV Ecology Branch.

16. Farmland shall provide bona fide researchers reasonable opportunity to salvage paleontological specimens and information for the duration of mining operations on the Farmland site. Prospective collectors availing themselves of this provision must have credentials verified by the Florida State Museum. Such individuals shall be allowed regular access to dragline spoil windrows, ore residue, ore piles and reject piles, subject to Farmland's requirements for safety and visitor accountability and on a strictly not-to-interfere with mining basis.

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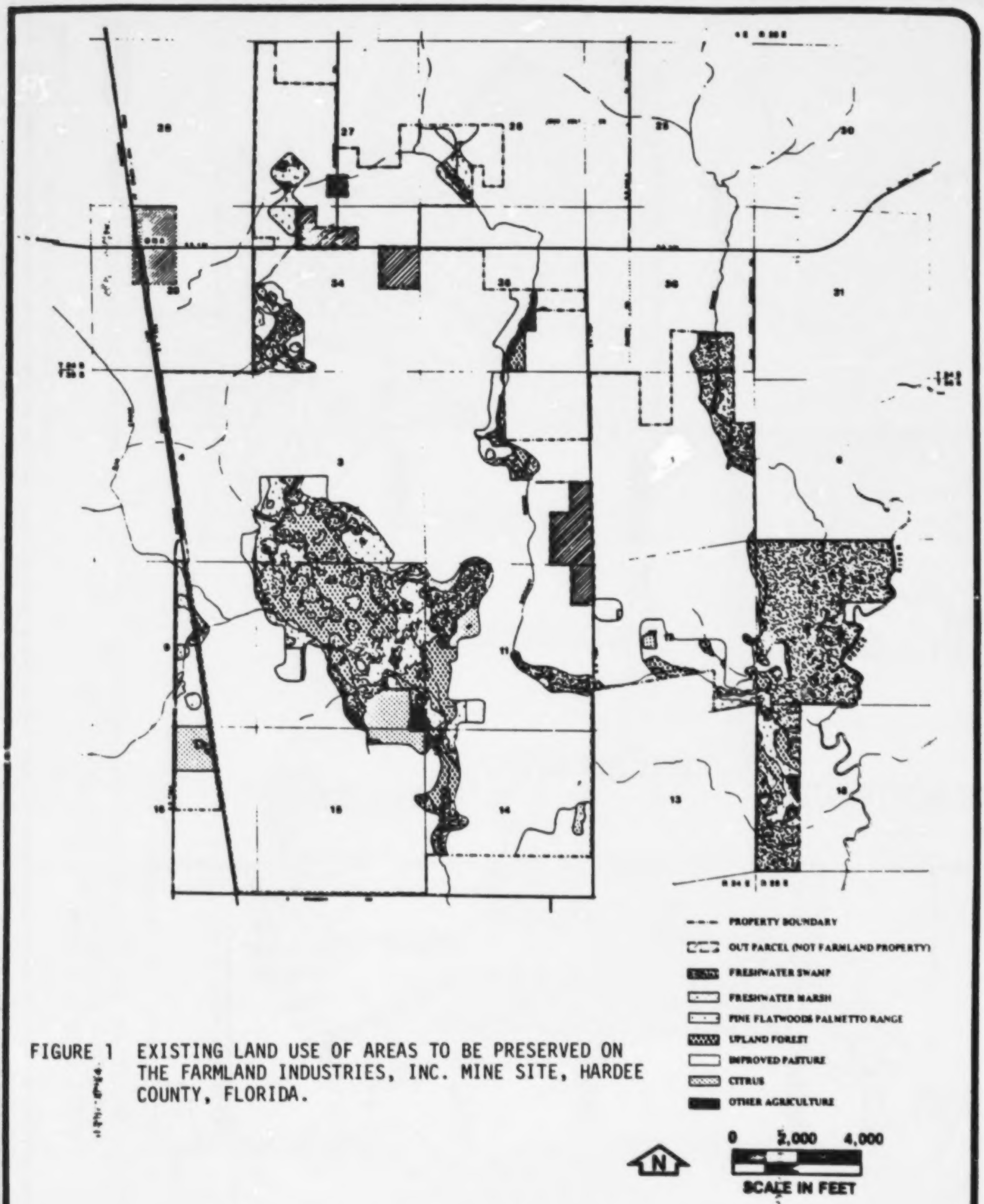
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FRESHWATER MARSH
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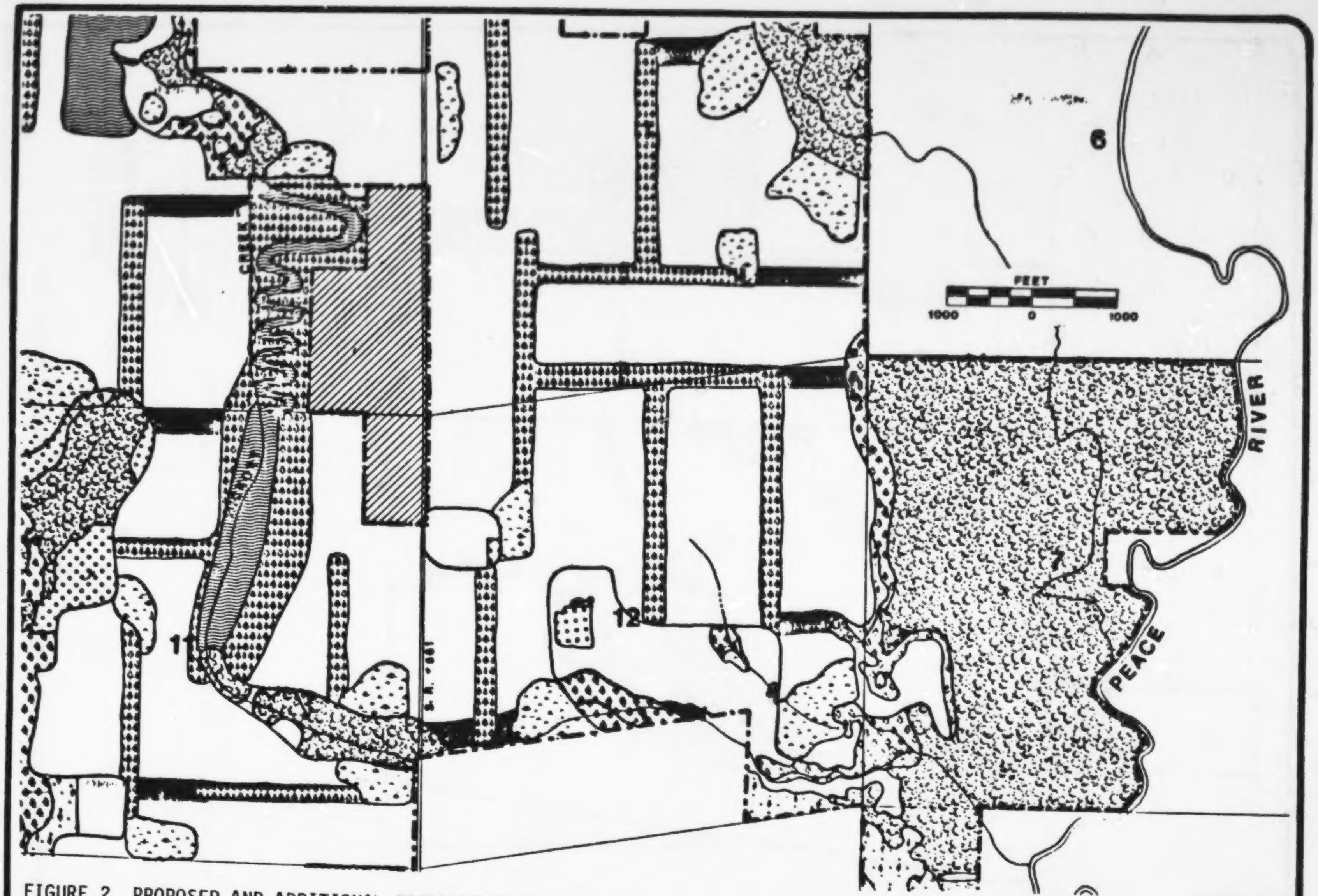
FIGURE 1 EXISTING LAND USE OF AREAS TO BE PRESERVED ON THE FARMLAND INDUSTRIES, INC. MINE SITE, HARDEE COUNTY, FLORIDA.

SOURCE: FARMLAND INDUSTRIES, INC., HARDEE COUNTY MASTER PLAN, JUNE 1979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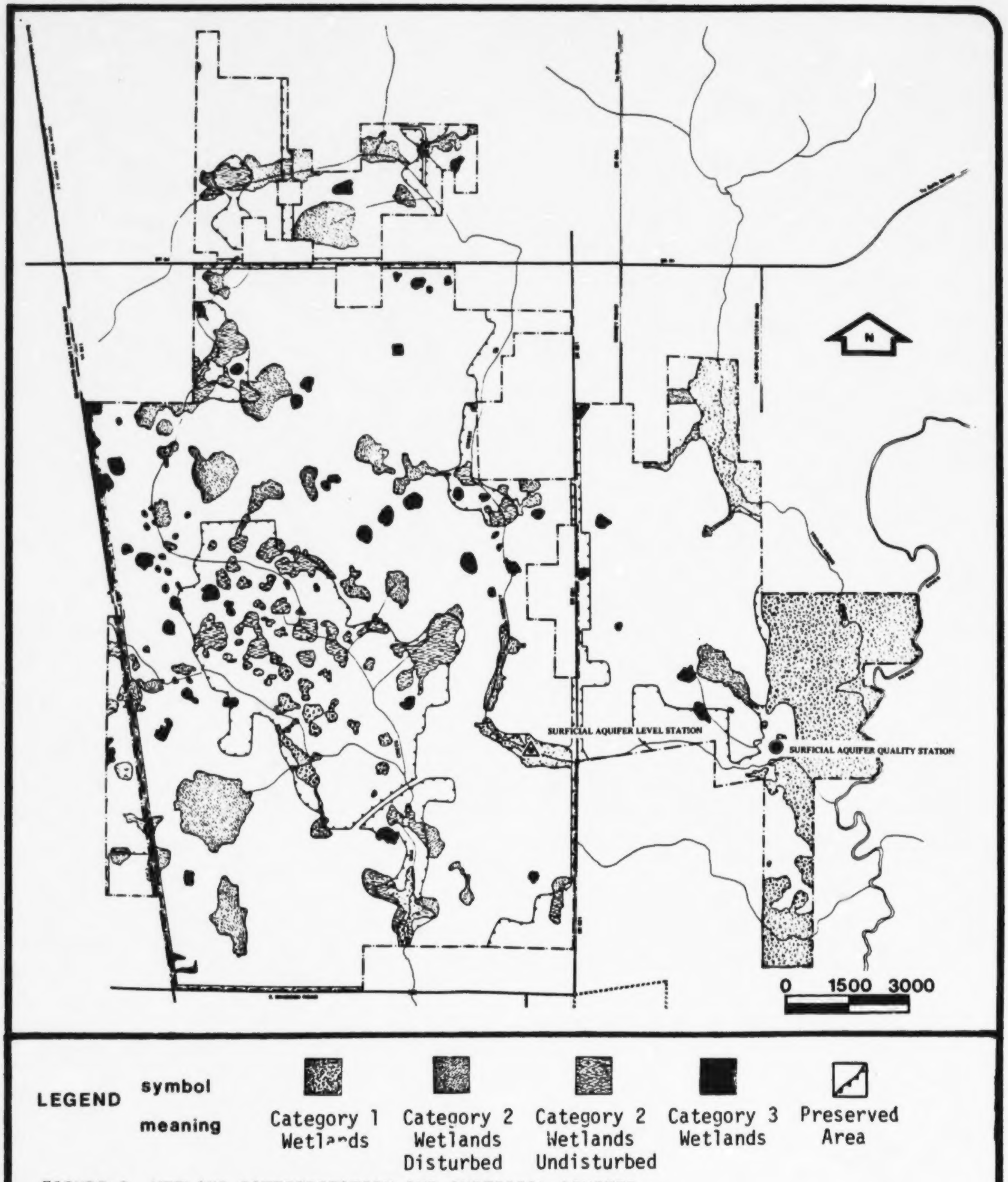
Proposed Reforestation Areas
Additional Reforestation Areas

FIGURE 2 PROPOSED AND ADDITIONAL REFORESTATION PLANTINGS ON THE FARMLAND INDUSTRIES, INC. MINE SITE, HARDEE COUNTY, FLORIDA.


SURFICIAL AQUIFER LEVEL STATION
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symbol
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Category 2 Wetlands Disturbed
Category 2 Wetlands Undisturbed
Category 3 Wetlands
Preserved Area

FIGURE 3 WETLAND CATEGORIZATION AND SURFICIAL AQUIFER MONITORING LOCATION, FARMLAND INDUSTRIES, INC. SITE, HARDEE COUNTY, FLORIDA.

SOURCE: WOODWARD-CLYDE CONSULTANTS (1980)